

DECEMBER 1988

**PROPOSED MODIFICATIONS
TO THE
DRAFT 1988
AIR
QUALITY
MANAGEMENT
PLAN**

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT



SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS



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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT



SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

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INTRODUCTION

Since the release of the draft 1988 Air Quality Management Plan in September, the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) have received input from environmentalists, business and industry, other governmental agencies, and the public at large. Those comments have ranged from very detailed analysis of the AQMP modeling results to questions about the technical or financial feasibility of individual control measures to comments about the public input process itself. There even was a proposal for new plan strategy. No matter what the substance of the comment, however, virtually all of the input demonstrated support by the breathers of this region for achieving healthful air as rapidly as possible.

Staff of both agencies and the state Air Resources Board have carefully reviewed all written comments, as well as transcripts from the six public hearings held throughout the region from October 12 through October 27. This document presents those comments and staff's response. Staff also has recommended changes to the draft plan, based on the comments received. Those changes are contained in this document as well.

SUMMARY OF PROPOSED PLAN MODIFICATIONS

The proposed modifications to the draft 1988 AQMP are intended mainly to clarify certain plan provisions which may have created confusion, correct technical errors, and to add or delete control measures where the information presented by the public comments indicates the need. However, the overall focus of the AQMP remains unchanged--achieving clean air throughout the basin within 20 years.

The revisions to Chapter 1: Introduction clarify how the AQMP relates to state and federal air quality planning requirements. In particular, the changes explain how the ARB and EPA are expected to address the commitments for action and the schedule set forth for achieving the goals of Tiers II and III, as well as those plan measures that are not under the direct authority of the SCAQMD, SCAG, or the ARB.

Chapter 3: Current and Future Emissions corrects a data entry in the draft plan. However, these changes do not alter the plan's conclusions.

The major changes to Chapter 4: Control Strategy Development reflect a refinement in the Energy Future analysis contained in the draft plan. First, the plan makes clear the SCAQMD's position that the Clean Fuels strategy is based on emissions reduction performance. Any fuel meeting the performance requirements established by state or district regulations qualifies as a clean fuel. The references in the plan to methanol or electricity are presented as performance benchmarks but are not intended as an endorsement of these fuels to the exclusion of other alternatives.

The second major energy-related modification is the addition of a new section titled "Energy Future." This section provides a revised analysis of the basin's future electricity needs based on fuel implementation of the AQMP as proposed. The discussion also offers information on the potential ability of utilities in the basin to meet that demand. These estimates, which reflect input from the California Energy Commission (CEC), Public Utilities Commission, utilities and other interested parties, indicate that the AQMP will not require the construction of additional fossil fuel-fired power plants either in or outside the basin.

Finally, modifications to Chapter 4 are proposed to reflect input on individual control measures. As a result of public comment, cost effectiveness figures have been revised for three measures:

A-16: Further Emissions Reductions from Perchloroethylene Dry Cleaning

C-10: Control of Emissions from Electric Power Generating Boilers

F-4: Control of Fugitive Emissions from Construction of Roads and Buildings

Three new Tier I measures are proposed:

D-4: Control of Emissions from Swimming Pool Water Heating

D-5: Control of Emissions from Residential and Commercial Water Heating

F-11: Emission Minimization Management Plan

In addition, a contingency measure is added to allow for the use of oxygenated fuels for control of carbon monoxide emissions. Detailed control measure descriptions for inclusion in Appendix IVA are presented with the modifications.

Chapter 5: Future Air Quality is being modified to add an explicit discussion of "basin carrying capacity," as required by California Health & Safety Code Section 40463(b).

Chapter 6: Plan Implementation is revised to reflect changes to control measures and the changes in implementing authority reflected by the recently adopted California Clean Air Act (AB 2595 - Sher).

Chapter 7: Policy Issues was intended to encourage public discussion of the draft plan. This chapter will be deleted from the final AQMP document.

PROPOSED MODIFICATIONS TO THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

Chapter by Chapter Description

**MODIFICATIONS TO
THE EXECUTIVE SUMMARY**

RECOMMENDED CHANGES

PURPOSE OF THE 1988 REVISION OF THE AIR QUALITY MANAGEMENT PLAN (AQMP)

Page ii, Fifth Paragraph

Once the 1988 AQMP Revision is adopted locally, and approved by the California Air Resources Board, it will become the framework for all future air pollution control efforts in the South Coast Air Basin. Those portions of the plan, necessary to meet Clean Air Act requirements Implementation Plan (SIP) revisions. This will include rules and regulations which have already been adopted, along with commitments to study, adopt, and implement many other measures. These commitments, where definite enough to be legally enforceable, should be able to receive full EPA approval. Finally, the AQMP contains a number of measures which need additional specificity, detail, and commitment to approval of all such measures by the EPA may not be possible, and the plan contains commitments to pursue the additional steps needed to further develop these measures so full approval can be obtained. The ARB will request that EPA approve and include in the SIP commitments of the District, SCAG, and ARB to complete the activities identified that will make timely implementation of the remaining measures possible.

THE ATTAINMENT STRATEGY

Page vii, Second and Third Paragraphs

Tier I controls are those that can be adopted within the next five years using currently available technological applications and management practices. Tier I control measures, summarized in Table 3, are expected to be adopted by the appropriate implementing agency by 1993. Full implementation of some measures, such as new vehicle controls and transportation facility constructions, which will not occur until 2007.

The total estimated cost for the Tier I measures that have cost data is about \$8.0 million per day. This represents an average cost of about 65 cents per day for each resident of the Basin. Improved technology may reduce the costs. On the other hand, the estimated air quality benefit maybe as high as \$1.61 per day per capita.

Page vii, Fifth Paragraph

Tier II measures include already-demonstrated control technologies and "on-the-horizon" technologies that require advancements that can reasonably be expected to occur in the near future. These advancements will be promoted through regulatory action, such as setting standards at levels that force the advancement of existing technology, or establishing a system of emission charges that provide an economic incentive to reduce emissions. The plan commits the District, SCAG, the ARB, and other adopting agencies to a comprehensive list and timetable of actions that are essential to successful implementation.

TIER III - DEVELOPMENT OF NEW TECHNOLOGY

Page viii, Fourth Paragraph

Tier III programs are designed to bring about major technological breakthroughs to further reduce emissions of reactive organic gases. Unlike the first two tiers, which measures, Tier III requires commitments to research, development and widespread commercial application of technologies that may not exist yet, but may be reasonably over the past 20 years. The AQMP contains commitments on the part of the District, SCAG, and ARB to the near term (next five years) actions that must be accomplished to realize the emission reductions in Tier III. Annual reports and the next revision of the AQMP will assess the success of these activities, and identify more specific Tier II and III measures.

Page ix, First Paragraph

If sufficient technologies to achieve the standards are not identifiable by the mid-nineties, contingency measures, such as holding VMT to 1985 levels, emission charges and highway user fees will have to be pursued.

Page ix, Second Paragraph

Modeling indicates that a further 90 percent reduction of ROG from solvents and coatings, and total conversion of the vehicle fleet to clean fuels, can bring the Basin into virtual attainment of the federal ozone standard.

Page ix, Fourth Paragraph

Modeling indicates that to meet the state standards for PM10 and ozone, we will require further emission reductions beyond those envisioned in Tiers I, II, and III.

SCHEDULE FOR IMPLEMENTATION OF ATTAINMENT STRATEGIES

Page xi, Second Paragraph

6. The Basinwide average per capita exposure to ozone levels above the federal standard during the worst episode will be lowered about 90 percent from the 1985 average.

RESPONSIBILITY FOR IMPLEMENTATION OF ATTAINMENT STRATEGIES

Page xii, Fifth Paragraph

Tier II control measures are primarily extensions of Tier I measures, but with more stringent requirements. Tier II goals are heavily dependent on research and development to facilitate their commercial application and widespread use. The technology advancement and demonstration projects needed to meet the Tier II goals are identified along with the responsible agencies and the time frames for achieving implementation.

Page xiii, First Paragraph

The District will be responsible for implementing most measures related to stationary sources. Growth management measures will be the primary responsibility of local governments, but there may be some involvement with such regional organizations as SCAG and the District. Local transportation commissions, along

with Caltrans, will be responsible for improvements to transportation infrastructure. Further controls on motor vehicles, consumer products and utility engines, are the responsibility of the ARB with the assistance of the District. The Tier II measures involving alternative fuels will be the joint responsibility of the District, the ARB, and the California Energy Commission.

Page xiii, Third Paragraph

The achievement of Tier III will require the combined efforts of the District, the state agencies (Air Resources Board, California Energy Commission, and Caltrans) and local and regional transportation and planning agencies. To coordinate these activities a task force will be formed among these agencies to coordinate necessary regulatory actions and to monitor progress toward meeting the Tier II and Tier III goals.

**MODIFICATIONS TO
CHAPTER 1: INTRODUCTION**

RECOMMENDED CHANGES

PURPOSE

Page 1-1, Addition to Section

Adoption of the AQMP by the District, SCAG and the ARB commits these agencies to an extensive list of regulatory, research and other activities needed to implement the measures contained in the AQMP. Where the measures involve currently technically feasible controls which the District or ARB have existing legal authority to adopt, the plan commits each agency to design, adopt, and implement the measure, or an equally effective set of substitutes, on the schedule contained in the AQMP. Where measures involve transportation or growth decisions for which SCAG has lead responsibility inclusion of a measure commits SCAG, with the assistance and support of the AQMD and ARB, to obtain the legal commitments needed to implement the adopted measures.

Many measures in the plan require actions by local, state or federal agencies that have not adopted or made a commitment to adopt (and are therefore not bound by) the AQMP. Others require modifications in federal or state laws or the advancement of technology beyond what is known to be feasible today. Inclusion of these measures in the AQMP commits the District, SCAG and the ARB to initiate and promote the activities that will result in timely adoption and implementation of these measures. This will involve the design, introduction and promotion of legislative proposals, creation of programs to work with local, state and federal agencies to gain commitment to measures, working with industry and funding research to advance technology and, finally, building public support so that the measures needed for attainment are understood, accepted and supported. Finally, the District, SCAG, and ARB have the opportunity to revise or replace control measures to reflect the most current analysis of control feasibility and effectiveness.

Because of the uncertainties in advancing technology, obtaining changes in existing law and securing the full, legally enforceable support of hundreds of local, state and federal agencies, neither the District, SCAG nor the ARB can guarantee the adoption and implementation of all measures in the plan. To ensure progress is

made, annual reports on the status of all measures contained in the plan will be prepared, as will a comprehensive update plan in 1991. The annual reports will indicate the success or problems with adopting measures, advancing technology, obtaining needed commitments, modifying state and federal laws in generating public support.

Page 1-6, Addition to Section

INTEGRATION OF STATE AND FEDERAL REQUIREMENTS

State law requires the AQMP to identify how the state and national ambient air quality standards will be achieved and maintained. The AQMP is to be prepared by the District and SCAG and becomes effective upon approval by the ARB. Most of the plan, those portions that address national ambient air quality standards and are required by the Clean Air Act, are to be submitted by the ARB to EPA as SIP revisions. (State law prohibits including those parts of the plan that relate exclusively to state standards in the SIP.)

While the plan intended to address the federal Clean Air Act, that effort is handicapped by the highly fluid and uncertain nature of current federal requirements. While the federal Act as a whole remains in effect, many of its provisions are subject to reinterpretation now that the 1987 deadline for attaining national standards has passed. The legal interpretations and policies of the EPA are in flux and the courts are engaged in a number of cases of potential relevance. This uncertainty may continue until Congress amends the Act in 1989 or thereafter. For these reasons, it is not possible to design the AQMP with reasonable assurance that it will meet all Clean Air Act requirements or be fully approved by the EPA.

This uncertainty is of particular concern to the ARB which by law is responsible for including the portion of the AQMP required by the Clean Air Act into the California State Implementation Plan and submitting it to EPA. To accomplish this, the ARB must review AQMP provisions prior to its adoption to determine their adequacy to meet Clean Air Act requirements. In some cases, the ARB will have to exercise its judgement in the absence of clear legal guidelines.

Fortunately, relatively clear federal guidelines do exist with respect to the control measures contained in the plan. Pursuant to the Clean Air Act, plans must provide assurances that the state will have adequate personnel, funding, and authority to

carry out implementation. The EPA has established general criteria for proper adoption, which states must include when submitting State Implementation Plan control measures to the EPA for approval. These criteria are used so that both emission reduction credit and a formal route of "federal enforceability" are ensured. EPA's criteria include requirements for legal authority, binding commitment, specificity, funding, scheduling, approval from appropriate governmental agencies (e.g., highway departments), and monitoring. The ARB will use these criteria in its consideration of all the control measures contained in the plan. It is important to note that, under current policy, EPA will consider that the state is not making reasonable efforts to develop an adequate plan if the state and local agencies fail to carry out their adoption process with respect to the plan's measures. This could subject the area to highway funding sanctions and, possibly, sewage treatment funding limitations authorized under the Clean Air Act.

Under current EPA legal interpretations, at least a part of the plan would be disapproved because it does not demonstrate attainment of the ozone and carbon monoxide standards within five years. In addition, the EPA is under court order to prepare a federal implementation plan (FIP) for the region which EPA would like to base on the AQMP. Under current EPA policy and legal interpretations, however, the FIP would have to contain a number of extreme measures which are not in the AQMP. While the plan would significantly increase the extent to which the region complies with the Clean Air Act, it cannot resolve all federal problems.

These facts, combined with the inability of the ARB, the District, and SCAG to guarantee implementation of all Tier II, and at this time, mean that EPA may be unable to approve in full either the entire plan or every measure included in the AQMP. In recognition of this situation, it is expected that after adoption of the plan by the District and ARB, the AQMP will be submitted to the EPA. Full SIP approval will be sought for those measures that meet EPA requirements for legal enforceability, and for the legally enforceable commitments of the District, SCAG and the ARB to complete the activities that will make timely adoption and implementation of the remaining measures possible. This will include commitments to study and adopt individual measures. EPA acceptance of commitments to pursue the remainder of the measures (i.e. those which are currently unenforceable or too ill defined to receive emission reduction credit) will also be sought. Finally, the technical requirements for inventory, modeling and related technical analysis.

CHAPTER 2: CURRENT AIR QUALITY

NO CHANGE

**MODIFICATIONS TO
CHAPTER 3: CURRENT AND FUTURE EMISSIONS**

Modifications to AQMP Chapter 3: Current and Future Emissions

A data entry error was noted in the forecast of emissions from on-road mobile sources for the year 2010. The revised emission and activity estimates will be included in the final plan.

Estimated Emissions and Activity for On-Road Mobile Sources: 2010 Baseline
(tons/day)

	ROG	NO _x	SO _x	CO	Number of Vehicle Trips (thousands)
Former	326	570	30	3938	48,893
Revised	302	554	31	3481	39,893

**MODIFICATIONS TO
CHAPTER 4: AQMP CONTROL STRATEGY**

Modifications to AQMP Chapter 4: Control Strategy Development

Based upon additional information and public comments received to date, a few changes were made to the control plan. Table 4-1 provides a list of control measures which were either reclassified or added to the draft plan. A description of each newly added control measure is contained in Attachment A. Table 4-2 lists three control measures whose control effectiveness have been revised. The updated Tier I emission reductions and control costs are summarized in Table 4-3. The latest cost data indicates that Tier I would cost about \$7.2 million a day or \$0.6 per capita. On the other hand, the Basin's air pollution damage costs to health, material, agriculture, and visibility amounted to about \$10 million to \$20 million per day or \$0.8 to \$1.6 per capita as a result of noncompliance with the federal ozone and particulate standards. A more detailed discussion on the cost/benefit issue is provided in the Final (FEIR). SCAG's Mobility Plan is now projected to cost \$57 billion for the next 20 years. \$21 billion of the total public funding needed has been secured. Table 4-4 summarizes the updated emission reductions by tiers.

Any reference to clean fuels for Tier I and II measures will be changed to very low emitting vehicles/engines, so as to include all emission control technologies and not only clean fuels. The definition for clean fuels in Tier I and II measures will be expanded to include all fuels which produce less ROG, NO_x, CO, and PM emissions compared to conventional fuels and are at least as clean as methanol when burned in an internal combustion engine, turbine, or boiler. The Tier III goal remains electric or essentially emission free vehicles.

A new section titled "Energy Future" is added to this chapter to clarify and revise the Basin's future energy demand and supply:

ENERGY FUTURE

Electricity is considered to be a clean fuel in the plan. It is called for in every tier to replace certain portions of fossil fuel combustion in both stationary and mobile sources. As a result, the plan will increase electricity demand. Table 4-5 shows the electrical energy need and capacity demand by 2010 for each tier to support electrification measures outlined in the plan.

To avoid the emission trade-offs between fuel combustion and power generation, and to assure that the added electrical energy demand can be met, the following energy strategy would be pursued:

- Implementation of in-basin energy conservation by all sources (e.g., residential, commercial, industrial, and mobile sources);

- Promotion of advanced energy conservation technologies (e.g., solar heating, super energy efficient equipment);

- Promotion of non-polluting power generating technologies (e.g., solar, fuel cells);

- Implementation of load management techniques to utilize both in-basin and out-of-basin off-peak excess power generating capacities ;

Promotion of energy efficient power generating technologies (e.g., advanced combined cycles).

An evaluation of available energy resources in accordance with the outlined energy strategy indicates that the added power demand caused by electrification measures could potentially be met without constructing any new fossil fuel power plants. Table 4-6 shows a preliminary supply matrix to demonstrate capacities potentially available from selected energy resources. As indicated in Table 4-6, the capacity demand created by Tier I and Tier II controls can be met by energy conservation measures and solar technology. Tier III's demand, due mostly to use of electric vehicles would depend heavily upon excess off-peak capacities from both in-basin and out-of-basin existing units. Since electric vehicles could be charged either during the day or at night, effective load management programs should be instituted to optimize the demand and supply matrix. It should also be noted that the most effective means to reduce energy consumption by electric vehicles will be reduction in vehicle miles traveled (VMT) and improvement in vehicle performance, which also needs to be pursued on a continuous basis.

Table 4-1
Revised Control Measures

AQMP Measure No.	Title	Comments
D-4	Control of Emissions from Swimming Pool Water Heating [NOx]	New Tier I measure
D-5	Control of Emissions from Residential and Commercial Water Heating [NOx]	New Tier I measure
F-11	Emission Minimization Management Plan [All Pollutants]	New Tier I measure
I-7	Control of Emissions from Utility Equipment [All Pollutants]	Reclassified under Tier I Off Road Vehicle Category
T-7	Oxygenated Fuels Program [CO]	New contingency measure
T-8	Time and Place Control Measures [All Pollutants]	New contingency measures

Table 4-2
Revised Cost Effectiveness

AQMP Measure No.	Title	Comments
A-16	Further Emissions Reductions from Perchloroethylene Dry Cleaning Operation [ROG]	Revised from \$3,000 per ton to \$7,200 per ton of ROG
C-10	Control of Emissions from Electric Power Generating Boilers [NOx]	Revised from \$18,000 per ton to \$3,500 per ton of NOx
F-4	Control of Fugitive Emissions from Construction of Roads and Buildings [PM]	Revised from \$9,300 per ton to \$4,650 per ton of PM

Table 4-3
Tier 1 Emission Reductions and Costs
by Control Category

Control Category	No. of Measures	Emissions Reductions					No. of Measures with Cost Data	Control Cost (\$ /Day)
		ROG	NO _x (Tons/Day)	SO _x	CO	PM		
Stationary Sources								
-Surface Coating and Solvent Use	22	219					14	380,000
-Petroleum and Gas Production	15	15	26	16	2		10	1 million
-Commercial and Industrial Processes	10	25	112	1	43	47	10	2.2 million
-Residential and Public Sectors	10	7	27	6	23	498	0	Unknown
-Agricultural Processes	3	13					2	22,000
-Others	11	78	39	20	29	182	5	2.2 million
Transportation Sources								
-Motor Vehicles	19	136	239	2	1780	10	7	1 million
-Transportation System and Land Use	20	120	166	19	1343	498	0	Unknown
-Off-Road Vehicles	13	45	70	21	279	8	6	240,000

TABLE 4-4
Summary of Emission Reductions
By Tiers

Source	ROG	NO _x	Pollutants (Tons/Day)		PM
			CO	SO _x	
Year 2010 Baseline					
Stationary Sources	649	271	205	71	2298
Transportation Sources	431	746	4262	69	128
Total	1130	1017	4467	140	2426
Tier I Reductions					
Stationary Sources	415	303	384	75	1075
Transportation Sources ⁺	202	282	2483	2	37
Total	617	585	2867	77	1112
Year 2010 Remaining Emissions After Tier I	513	432	1600	63	1314
Tier II Reductions					
Stationary Sources	133	25	15	6	208
Transportation Sources ⁺	15	82	305	10	4
Total	148	107	320	16	212
Year 2010 Remaining Emissions After Tier II	365	325	1280	47	1102
Tier III Reductions					
Stationary Sources	107	2 [*]	2 [*]	3 [*]	2 [*]
Transportation Sources ⁺	76	119	1094	14	5
Total	183	121	1096	17	7
Year 2010 Remaining Emissions After Tier III	182	204	184	30	1095

⁺ Emission reductions do not reflect recent changes in on-road mobile sources emission inventory. However, the impact of such changes on emission reductions in mobile source category would be minor and would not change the overall AQMP results.

^{*} Emission reductions are due to controls on transportation sources.

Table 4-5
Energy forecast for
AQMP Electrification Strategy
(Year 2010)

Electrification Measures*	Energy(GWh/Yr)	Capacity(MW)	
		AM	PM
Tier I	2,500	300	200
Tier II	18,000	1,400	2,700
Tier III	40,000	2,700	6,300
Total	60,500	4,400	9,200

* Tier I electrification measures: Internal Combustion (I/C) engines, utility equipment, cold ironing, transit buses, and railroads. Tier II targets: Reducing the remaining emissions from industrial fuel combustion sources after Tier I by 50 percent; 20 percent passenger electric vehicles (@ 0.75 kwh/mile). Tier III goals: 100 percent passenger electric vehicles (@ 0.5 kwh/mi).

Table 4-6
Potential Power Supply Matrix
for the Basin

	Capacity(MW)	
	AM	PM
Demand	4,400	9,200
Supply		
<u>In-Basin:</u>		
Conservation	1,900	900
Solar Power	1,500 ~ 2,000	
Solar/Fuel Cell		
EVs	300 ~ 1,000	
Off-peak Excess		1,000 ~ 2,000
Fuel Cells	500 ~ 1,000	500 ~ 1,000
Repowering		500 ~ 1,000
<u>Out-of-Basin:</u>		
Hydropower		500 ~ 1,500
Off-peak Excess		3,000 ~ 4,000
Geothermal	500 ~ 1,000	500 ~ 1,000
Thermally Enhanced	1,000 ~ 2,000	1,000 ~ 2,000
Oil Recovery		

**MODIFICATIONS TO APPENDIX IV-A
TIER I AND TIER II
CONTROL MEASURES**

CONTROL OF EMISSIONS FROM RESIDENTIAL AND COMMERCIAL WATER HEATING [NO_x]

SUMMARY

Source Category: Commercial and Residential Water Heating

Control Methods: Installation of Solar Equipment

<i>Emissions: (Tons/Day)</i>	<i><u>Year 1985</u></i>	<i><u>Year 2000</u></i>	<i><u>Year 2010</u></i>
<i>NOx Inventory</i>	<i>13.3</i>	<i>10.7</i>	<i>12.3</i>
<i>NOx Reduction</i>	<i>Not Determined</i>		

Control Cost: Cost Savings to \$62,500 Per Ton of NOx Reduced

Other Impacts: Reduced Consumption of Natural Gas; Possible Adverse Impact on Commercial/Residential Building Cost; May Require Cooperation of Local Jurisdictions for Inclusion in Local Building Codes.

DESCRIPTION OF SOURCE CATEGORY

Background

In the South Coast Air Basin there are currently about 3.3 million natural gas-fired water heaters in residential establishments using fuel at an average rate of about 65 cubic feet per day per unit. The average unit life is ten years. There are approximately 24,100 small commercial boilers of less than 5 MM Btu/hr heat input in the Basin. The majority of these boilers are less than 0.5 MM Btu/hr heat input, and are estimated to be used for only hot water heating. Average fuel consumption for all commercial boilers less than 5 MM Btu/hr is about 2250 cubic feet per day per unit. Roughly one quarter of all U.S. energy consumption is related to space heating, water heating and air conditioning (Eaton, 1976). Application of domestic solar water heating offers a means to reduce natural gas consumption and NO_x emissions simultaneously. Solar water-heating technology, such as flat plate collectors can yield water with temperatures from 100°F to 200°F depending on conditions, and has been employed extensively to supply domestic hot water in many areas

of the world with prevalent incident sunlight (Eaton, 1976). The use of solar water heating would be especially beneficial during the peak ozone months when the photoperiod is longer and incident radiation most intense. California State standards in hardware quality have been established for solar units. Federal and state tax incentives which previously promoted solarization are no longer in force.

Regulatory History

District Rule 1121 regulates the NO_x emissions of residential gas-fired water heaters, and has limited NO_x emissions to 2.3 pounds per year per new unit since January 1, 1983. Full compliance is expected by the end of 1992, when 3.64 million water heaters are expected in the District.

In addition, since the rule's adoption in 1978, the California Energy Commission (CEC) adopted ASHRAE-90 Standards (in 1978-79), which resulted in increasing the average seasonal efficiency from 46 to 55 percent (Messenger, 1987), with a corresponding emission reduction of 16 percent when all units are replaced.

Based on Measure N2 of the 1982 AQMP Revision (SCAQMD, 1982), this control measure is modified to incorporate the current District water heater NO_x rule.

This measure differs from that originally proposed as D-2 in the June 1988 Policy Proposal in that it requires installation of solar equipment on new residential construction over 2,000 square feet, and all commercial construction, rather than replacement of all new and existing residential natural gas water heating systems with solar.

PROPOSED METHOD OF CONTROL

NO_x emissions from natural gas-fired water heaters can be controlled by requiring the installation of solar equipment on water heating systems in all new residential multi- and single-family homes over 2,000 square feet, and all new commercial buildings. Nonconcentrating solar collectors, such as flat plate solar panels, are capable of providing sufficient domestic water heating capabilities. Conventional natural gas-fired water heaters would continue to be used to supplement the solar component.

On a yearly basis, solar energy could provide about 52 percent of the energy needed for a given water heating system, with the remaining 48 percent provided by the conventional natural gas unit in compliance with the District Rule 1121 and CEC standards.

EMISSIONS REDUCTION

Residential water heaters accounted for approximately 12.3 tons of NO_x per day in 1985. This is expected to fall to 9.0 tons per day at the end of 2000 when Rule 1121 achieves full implementation. The emission estimate for 2010 is 10.2 tons per day due to population growth. NO_x emissions for commercial water heating for 1985 are estimated at about 1.0 tons per day. Projections for 2000 and 2010 are estimated at 1.7 and 2.1 tons per day, respectively. Emission reductions are not estimated at this time and require further study due to uncertainty as to the number of new construction units requiring solar installation. Implementation of this measure may contribute to the SCAG Energy Conservation Measures.

COST EFFECTIVENESS

The solar panel equipment and installation costs for new homes with one flat plate collector is approximately \$2,000, and can be financed over the life of the home. For new single- or multi-family houses, without any cost recovery at time of resale, the cost-effectiveness for solar panels was calculated to be \$62,500 per ton of NO_x reduced. However, for new homes, assuming that 50 percent of the solar panel cost can be recovered at resale, these panels can generate savings for the owner.

The equipment and installation cost for retrofitting existing homes with one flat plate solar collector unit is about \$4,000, making the calculated cost-effectiveness unacceptably high (from \$300,000 to over \$500,000 per ton of NO_x reduced). Control measure D-2, "Application of Solar Panels on Domestic Water Heaters", presented in the June 1988 Policy Proposal was deleted due to the high cost estimated for retrofit of all residential natural gas water-heating systems.

The cost effectiveness for using solar panels to heat water in a commercial setting is \$9,600 per ton of NO_x reduced.

OTHER IMPACTS

Residential and commercial natural gas consumption would be reduced in the Basin. Building costs for residential and commercial properties would increase depending on the number of solar collectors required to adequately provide suitable domestic hot water heating. The District would be required to seek the cooperation of local jurisdictions in including the solar water heating replacement requirement in local building codes.

REFERENCES

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Gaines, Mark. 1987. Southern California Gas Company. Personal communication with Larry Irwin, November, 1987.

Gardetta, Jerry. 1988. Southern California Gas Company. Personal communication with David Vensel, November, 1988.

Messenger, Mike. 1987. California Energy Commission. Personal communication with Larry Irwin, November, 1987.

South Coast Air Quality Management District. 1982. Final Air Quality Management Plan. Appendix VII-A, Measure N2. El Monte, CA. October 1982.

South Coast Air Quality Management District. 1988. Addendum to the Staff Report for Proposed Rule 1146-"Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters". February 19, 1988.

Southern California Gas Company. 1987. "Fact Sheet".

EMISSIONS REDUCTION FROM SWIMMING POOLS [NO_x]

SUMMARY

Source Category: Swimming Pools (including spas and hot tubs)

Control Methods: Installation of Flat Plate Solar Collectors

Emissions: Not Determined

Control Cost: Possible Long Term Savings

Other Impacts: Fuel savings

DESCRIPTION OF SOURCE CATEGORY

Background

Currently in the District there are about 3.3 million natural gas fired water heaters using fuel at an average rate of about 65 cubic feet per day per unit. With about half a million swimming pools in Southern California, many of these water heaters are applied to heat pools and hot tubs. With the construction of new houses and residential buildings with swimming pools, or adding one to those existing residences without a pool, additional natural gas will be consumed to heat pools. In addition to residential swimming pools, there are commercial and recreational (i.e., hotels, sport clubs, and parks) swimming pools, almost all of which are heated with gas fired water heaters. The purpose of this control measure is to control NO_x emissions from gas fired swimming pool water heaters. Solar water heating is a well developed technology which offers a means to reduce natural gas consumption and thus NO_x emissions. This technique could specifically be applied to swimming pools heating, and its feasibility has been proven in other "sunshine" states like Florida.

Regulatory History

District Rule 1121 regulates NO_x emissions from residential gas-fired water heaters, and has limited NO_x emissions to 2.3 pounds per year per new unit since January 1, 1983. In addition, since the rule's adoption in 1978, the

California Energy Commission (CEC) adopted ASHRAE-90 Standards (in 1978-79), which resulted in increasing the average seasonal efficiency from 46 to 55 percent (Messenger, 1987), with a corresponding emission reduction of 16 percent when all units are replaced.

At present, the District does not have a specific rule directed at swimming pool water heaters. The proposed measure would control NOx emissions from heating swimming pools in the Air Basin.

PROPOSED METHOD OF CONTROL

In order to control NOx emissions from natural gas fueled water heaters applied to swimming pools, all new installations of swimming pools with water heater will be required to install flat-plate solar collectors.

EMISSIONS REDUCTION

The NOx emission inventory from gas fired water heaters for heating swimming pools is currently not available and estimation of emission reductions from this source category requires further analysis.

COST EFFECTIVENESS

Due to unknown emissions inventory and reduction potentials, the cost effectiveness of the proposed control measure is uncertain at this time.

The initial equipment and installation cost of solar panel is estimated between \$5,000 to \$12,000 depending on the size of the pool. With the fuel savings this cost may be paid back in approximately 3-5 years (Eder, 1988).

OTHER IMPACTS

The solar panel installed for heating swimming pools may also be used for other water heating purposes.

In order to require solar panel on new swimming pool installations with heating system, the District may seek other local jurisdiction cooperation to include the requirements in the building codes.

REFERENCES

Eder, Harvy. 1988. Public Solar Power Coalition. Personal communication with Shoreh Cohanin, November 1988.

Gaines, Mark. 1987. Southern California Gas Company. Personal communication with Larry Irwin, November 1987.

Messenger, Mike. 1987. California Energy Commission. Personal communication with Larry Irwin, November, 1987.

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Southern California Gas Company. 1987. "Fact Sheet".

EMISSION MINIMIZATION MANAGEMENT PLAN
[ALL POLLUTANTS]

SUMMARY

Source Category: All Stationary Sources

Control Methods: Emission Minimization Management Plan

Emissions: See "Emission Reduction" Section

Control Cost: See "Cost-Effectiveness" Section

Other Impacts: None

DESCRIPTION OF SOURCE CATEGORY

Background

Additional emission reductions are available in those categories directly targeted by source specific measures in the AQMP. One method by which to achieve these additional emission reductions is the adoption of an Emission Minimization Management Plan Rule. Adoption of such a rule would require all facilities coming before the District for construction or operating permits to attest on the permit application to the existence of an emission minimization plan. The objective of the plan would be to minimize air pollution through a practical approach involving management practices which may include: energy conservation measures such as, more efficient lighting, space heating and/or cooling, and water heating systems; alternative or flexible work schedules such as a four day work week or telecommuting, and carpooling or vanpooling; reduced fuel consumption through applying energy efficient equipment or process modifications; and reduced solvent use through source reduction and/or waste minimization programs.

Regulatory History

This measure is similar in concept to the stationary source curtailment and transportation management plan development required under Regulation VII. Addition of a section on the construction or operation permit attesting to the existence of an Emission Minimization Management Plan would resemble the Generator's Certification listed as item 16 on the RCRA Uniform Hazardous Waste Manifest.

PROPOSED METHOD OF CONTROL

The proposed measure would require that facilities further identify direct and indirect sources of emissions for reduction beyond mandatory requirements. Control methods to achieve the additional reductions may include: energy conservation measures such as, improved building insulation, more efficient lighting, space heating and/or cooling, and water heating systems; alternative or flexible work schedules such as, flextime, a four day work week, or telecommuting and greater use of public transportation, carpooling or vanpooling; reduced fuel consumption through application of energy efficient equipment or process modifications; and reducing solvent use through source reduction and/or waste minimization programs.

Facilities would be required to develop a plan, including a facility evaluation, a current emission inventory, and process or procedural changes under consideration which could reduce emissions. A copy of this plan may be kept on file with the permit to operate or construct. Preparation of such a plan would require facilities to demonstrate their individual commitment to improved air quality in the South Coast Air Basin, while providing flexibility in that the emission category and method of reduction are not mandated by the District.

EMISSIONS REDUCTION

The emissions from this category include all remaining emissions after application of mandatory rule requirements. Emissions reduction is uncertain at this time, however the District may set a target reduction goal based on the number of stationary sources requiring Emission Management Plans.

COST EFFECTIVENESS

The cost effectiveness values for this measure will vary depending on the type of control measures instituted by the facilities. Savings may be realized from a number of control methods including, but not limited to, reduced commuting by employees, decreased energy costs, and lower solvent usage from greater recovery and/or recycling.

OTHER IMPACTS

Positive impacts as a result of the proposed measure include greater facility awareness of impact on air quality and achievement of emission reductions that may not have occurred.

OXYGENATED FUELS PROGRAM [CO]

SUMMARY

Source Category: All Gasoline Vehicles

Control Methods: Increased Oxygen Content of Gasoline

Emissions:

<i>(Tons/Day)</i>	<u><i>Year 1985</i></u>	<u><i>Year 2000</i></u>	<u><i>Year 2010</i></u>
<i>ROG Inventory</i>	<i>554</i>	<i>226</i>	<i>285</i>
<i>ROG Reduction</i>	<i>---</i>	<i>(Not Determined)</i>	
<i>ROG Remaining</i>	<i>---</i>	<i>(Not Determined)</i>	
 <i>CO Inventory</i>	 <i>4,676</i>	 <i>2,911</i>	 <i>3,812</i>
<i>CO Reduction</i>	<i>---</i>	<i>(Not Determined)</i>	
<i>CO Remaining</i>	<i>---</i>	<i>(Not Determined)</i>	
 <i>NO_x Inventory</i>	 <i>477</i>	 <i>324</i>	 <i>387</i>
<i>NO_x Reduction</i>	<i>---</i>	<i>(Not Determined)</i>	
<i>NO_x Remaining</i>	<i>---</i>	<i>(Not Determined)</i>	

Control Costs: Gasoline Price Increase of 0 to 2 cents per gallon. This is equivalent to Carbon Monoxide reduction cost of \$112 to \$543/ton. These costs are based on Colorado data.

Other Impacts: Increase in Oxides of Nitrogen Emissions, Fuel Economy Effect, Potential Evaporative Emissions Increase.

DESCRIPTION OF SOURCE CATEGORY

Background

The use of an oxygenated fuel blend, such as gasoline with 10% ethanol, results in more oxygen for fuel combustion due to the oxygen contained in the additive. Fuel metering devices, such as carburetors or fuel injectors, usually meter fuel and air volumetrically. Thus, the extra oxygen in the fuel mixture results in less fuel and more total oxygen

reaching the engine for fuel combustion. If the initial gasoline mixture is rich, this enleanment results in reduced exhaust ROG and CO emissions; however, it also causes an increase in vehicle NO_x emissions.

Regulatory History

The Colorado Air Quality Control Commission enacted its Oxygenated Fuels Program to take effect in the winter of 1988. This program requires oxygenated fuels to be sold in CO non-attainment areas each winter season. The Colorado 1988 program was in effect during January and February with a requirement for a minimum oxygen content of 1.5% by weight. In future years, the program will be in effect from November 1 through March 1. The minimum oxygen content requirement will be 2% by weight. The Colorado Oxygenated Fuels Program, as modeled, resulted in an 8% to 11% reduction in ambient CO levels. Arizona has implemented an oxygenated fuel program and Washoe County, Nevada plans to adopt a program that will begin in the winter of 1989.

PROPOSED METHOD OF CONTROL

The proposed method of control is to require a minimum oxygen content for gasoline sold in the Basin. The sale of oxygenated fuel may be limited to winter months with a minimum oxygen content of approximately 1.5% - 4%.

EMISSION REDUCTION

Exhaust Emissions

The following is EPA's conclusion concerning the exhaust emission changes with oxygenated blends for fuels with 3.7% oxygen (gasohol or methanol blends) and 2% oxygen (11% MTBE-metyl tert-butyl ether). Both CO and exhaust ROG decrease while NO_x increases. ROG emissions, in effect, are the non-methane hydrocarbons with adjustments made to account for the mix of true hydrocarbons, alcohols, and aldehydes that is expected with each blend. Because vehicle exhaust emissions with oxygenated fuels are still primarily true hydrocarbons, the adjustment is small. Specifically, EPA assumed that the effects of slightly increased alcohol and aldehyde emissions balance each other.

Percent Exhaust Emission Change Between Oxygenated Fuel and Gasoline With Varying Fuel Oxygen Content at Constant Fuel Volatility.

<u>Technology</u>	3.7% Oxygen			2.0% Oxygen		
	<u>CO</u>	<u>NO_x</u>	<u>ROG</u>	<u>CO</u>	<u>NO_x</u>	<u>ROG</u>
Non-Catalyst	-24.5	+3.3	-5.5	-13.2	+2.1	-3.0
Open-Loop Cat.	-34.9	+4.0	-15.6	-18.9	+2.2	-8.4
Closed-Loop Cat.	-21.4	+8.1	-5.1	-11.6	+4.4	-2.8

Evaporative Emissions

Evaporative emissions consist of hot soak and diurnal emissions. Hot soak emissions occur during the period immediately following engine shut-down. These losses originate from both the fuel metering system and from the fuel tank. These emissions are greater from carbureted vehicles than from vehicles with fuel injection. Diurnal emissions consist of hydrocarbons both evaporated and displaced from the vehicle's fuel tank as the vehicle tracks the diurnal swing in ambient temperatures. Each day, as the fuel in the tank and the vapor above the fuel heat up, more of the liquid fuel evaporates and the vapor itself expands, with both phenomena causing hydrocarbons to be released into the atmosphere. If no adjustments are made to compensate for it, use of alcohol increases vapor pressure compared to the base gasoline. This increases evaporative emissions.

Additional Studies

Additional analysis is required before this control measure is undertaken. Tests need to be conducted on newer closed-loop vehicles that are equipped with "adaptive learning". Properly functioning vehicles with adaptive learning continuously adjust their open-loop fuel calibrations based on the most recent period of closed-loop operation. Thus, they can in theory compensate at least partially for fuel-caused enrichment even when the oxygen sensor is in control, such as during cold starts and heavy accelerations. They also may not run as rich in failure modes as simpler closed-loop vehicles. These vehicles may have lower exhaust CO and ROG reductions from oxygenated blends than earlier closed-loop vehicles. These lower reductions expected for the adaptive learning vehicles are not reflected in EPA's test data. The ARB is conducting emission testing of five adaptive learning vehicles to determine their performance levels.

Studies also need to be performed to determine overall ROG emissions impact. Modeling studies need to be undertaken to determine the effect of increased NO_x emissions on ambient levels of NO₂, PM₁₀ and ozone. The SCAQMD, ARB, and EPA will analyze the air quality effect of an oxygenated

fuel program in the Basin prior to moving forward with any proposed regulations mandating their use.

COST EFFECTIVENESS

In the Colorado Oxygenated Fuels Program, in which 8% MTBE captured a 94% market share with ethanol accounting for the rest, the estimated dollar per ton cost of CO reduction was calculated. This program costs ranged from \$154/ton (central estimate) to \$543/ton (upper-board estimate) for an 8% CO reduction and \$112/ton to \$395/ton for an 11% CO reduction. The increased cost on a per gallon basis was \$0.0046/gallon (central estimate) to \$0.0159/gallon (upper estimate). The estimated total household cost was \$0.868 (central estimate) to \$2.97 (upper estimate).

OTHER IMPACTS

According to the Colorado data, fuel economy for catalyst-equipped vehicles increased by 1.3% for MTBE blends, and by 0.3% for ethanol blends, but decreased by 0.2% for the methanol blend, Oxinol. Non-catalyst vehicles changes in fuel economy when using oxygenated fuels ranged from a decrease of 0.3% for ethanol blends to an increase of 0.2% for methanol (Oxinol 50) blends. MTBE blends showed no change. Overall, catalyst and non-catalyst vehicles exhibit no appreciable change in fuel economy from the use of oxygenated fuels.

REFERENCES

United States Environmental Protection Agency. 1988. Technical Report: Guidance on Estimating Motor Vehicle Emission Reductions From The Use of Alternative Fuels and Fuel Blends. Emission Control Technology Division, Office of Mobile Sources, Office of Air and Radiation, U. S. EPA, Ann Arbor, MI. January 29, 1988.

Colorado Air Quality Control Commission. 1988. 1988 Oxygenated Fuel Program: Annual Report to the Colorado Air Quality Control Commission. May 19, 1988.

Control Measure CM #88-B-13* Further Emission Reductions From Valves, Pumps, and Compressors Used in Oil and Gas Production Fields, Refineries, and Chemical Plants

PROPOSED METHOD OF CONTROL

Based on the proposed Rule 1173, currently under rule-making process, the proposed leakless equipment alternative would be deleted as the primary method of control, and will be replaced by a more stringent inspection and maintenance program. The expected control efficiency for this measure is estimated to be about 60 to 90 percent in ROG reductions.

COST EFFECTIVENESS

The control cost for this measure is currently being evaluated by the District's Rules Division.

Control Measure CM #88-C-9* Control of Emissions From Stationary Gas Turbines

Based on the Addendum B to the Staff Report for Proposed Rule 1134, dated September 8, 1988, the following sections are updated:

PROPOSED METHOD OF CONTROL

The proposed NO_x emission levels and the corresponding compliance schedule are specified below:

1. By 30 months after date of adoption:
 - (a) 42 ppm for gas/methanol firing and 75 ppm for oil firing for units from 0.3 MW to less than 10.0 MW.
 - (b) 12 ppm for units 10 MW or larger
2. By 60 months after date of adoption:
 - (a) 42 ppm for gas/methanol firing (no oil limit because methanol will be the standby fuel) for units from 0.3 MW to less than 2.9 MW or greater.
 - (b) 25 ppm for units of 2.9 MW to 10 MW
 - (c) 12 ppm for units 10 MW or greater

New units 0.3 MW or greater size must comply with a 9 ppm NO_x limit. Existing units burning landfill gas or digester gas by 30 months after date of adoption must comply with a 42 ppm NO_x limit and by 60 months after date of adoption must meet the 12 ppm NO_x limit.

EMISSIONS REDUCTION

NO_x emissions inventory and reductions are updated as follows:

Emissions (Tons/Day)	<u>Year 1985</u>	<u>Year 2000</u>	<u>Year 2010</u>
NO _x Inventory	17.5	37.7	37.7
NO _x Reduction	----	<u>22.6</u>	<u>22.6</u>
NO _x Remaining	----	15.1	15.1

COST EFFECTIVENESS

The average cost effectiveness is estimated to be \$3,500 per ton of NO_x reduced using steam injection technology.

Control Measure CM #88-F-10**Phase-Out Stationary Source Fuel Oil and Solid Fossil Fuel Use****EMISSIONS REDUCTION**

Methanol or other alternative fuels (e.g., propane) can be utilized during a natural gas curtailment, increases in power demand, and emergencies. Based on substitution of methanol for fuel oil, the NO_x, PM, and SO_x emissions reductions for the years 2000 and 2010 are as follows:

Emissions: (Tons/Day)	<u>Year 1985</u>	<u>Year 2000</u>	<u>Year 2010</u>
NO _x Inventory	22.0	27.6	30.2
NO _x Reduction	----	<u>16.6</u>	<u>18.1</u>
NO _x Remaining	----	11.0	12.1
PM Inventory	1.7	2.6	2.8
PM Reduction	---	<u>2.2</u>	<u>2.4</u>
PM Remaining	---	0.4	0.4
SO _x Inventory	10.8	15.9	16.0
SO _x Reduction	----	<u>15.9</u>	<u>16.0</u>
SO _x Remaining	----	0	0

Control Measure CM #88-H-1 Disincentives for Idling at Drive-Through Facilities

EMISSIONS REDUCTION

The emissions inventory as presented in this measure is in error and is currently being determined.

Control Measure CM #88-T-8 Time and Place - Specific Control Measures

This is a new contingency control measure oriented toward specific control measures at specific times and places. The control options currently being contemplated include:

- Noontime starts of summer work days

- Noontime starts in the coastal/central areas

- Disincentives for vehicles in business areas

- Emergency plan measures required for forecast Stage I episodes

- Shutdown of non-essential services during forecast Stage I episodes

- Prohibition of single-occupant vehicles from entering the freeway system

- Provision of free bus ride during summer

- Banning organic solvent use on forecast Stage I episodes

The feasibility and potential impacts on air quality of these type of measures will be further examined in the next few years.

**MODIFICATIONS TO
CHAPTER 5: FUTURE AIR QUALITY**

Modifications to Chapter 5: Future Air Quality

The following section is added to the end of the chapter:

Basin Emission Carrying Capacity

The South Coast Air Quality Management District is required to separately identify the emission reductions and corresponding type and degree of implementation measures required to meet federal and state ambient air quality standards. Section 40463(b) of the California State Health and Safety Code specifies that, with the active participation of the Southern California Association of Governments, a South Coast Air Basin emission carrying capacity for each state and federal ambient air quality standard shall be established by the South Coast District Board for each formal review of the plan and shall be updated to reflect new data and modeling results.

A carrying capacity is defined as the maximum level of emissions which enable the attainment and maintenance of an ambient air quality standard for a pollutant. Emission carrying capacity for state standards shall not be a part of the State Implementation Plan requirements of the Clean Air Act for the South Coast Air Basin.

Emission carrying capacity as defined in the Health and Safety Code is an overly simplistic measure of the basinwide allowable emission levels for specific ambient air quality standards. It is highly dependent on the spatial and temporal pattern of the emissions. Because of the multicomponent nature of PM₁₀, carrying capacity for the contributing emittants can vary significantly. For ozone and secondary PM₁₀ components, the carrying capacity is a non-linear function among their precursors.

Based on the modeling results for the 1988 AQMP Revision, a set of carrying capacities can be defined corresponding to federal and state ambient air quality standards for CO, NO₂, PM₁₀, and O₃ (see Table 1). These estimates are based on emission patterns estimated for the year of 2010. The modeling results indicate that all the Tier II control measures will be required to barely meet the federal 24-hour standard for PM₁₀, and all the Tier III control measures will be needed to meet the federal ozone standard. There were no estimations made for the carrying capacity for the state PM₁₀ and ozone standards for the 1988 AQMP Revisions. The District will continuously further define and refine the carrying capacity estimation by undertaking additional model simulations for a number of representative episodes.

TABLE 5-3

**EMISSION CARRYING CAPACITY ESTIMATION UPDATE FOR THE 1988
AQMP REVISION FOR THE SOUTH COAST AIR BASIN**

Pollutant	Standard	Carrying Capacity Estimate (tons/day)				
		ROG	NO _x	CO	SO _x	PM
CO	Federal 1-hour			7900		
	Federal 8-hour			3300		
	State 1-hour			4500		
	State 8-hour			4200		
NO ₂	Federal Annual		920			
	State 1-hour		620			
PM ₁₀	Federal 24-hour		364		47	1370
	Federal Annual		540		47	1370
O ₃	Federal 1-hour	200				
OVERALL BASINWIDE		200	364	3200	47	1370

**MODIFICATIONS TO
CHAPTER 6: IMPLEMENTATION**

Modifications to Chapter 6: Plan Implementation

Based upon the modifications made to the control strategy and the recent passage of Sher Bill (AB 2595), the consequent changes in implementing agency and schedule are summarized in Table 6-1.

Table 6-1
Modification to Plan Implementation

AQMP Control No.	Title	Responsible Agency	Adoption Date	Comments
A-18	Control of Emissions from Underarm Products [ROG]	ARB	1992	ARB is responsible for measure implementation due to passage of AB 2595 (Sher Bill)
A-19	Control of Emissions from Domestic Products [ROG]	ARB	1992	(Same as above)
D-4	Control of Emissions from Swimming Pool Water Heating [NOx]	Local Govt.	1990	New control measure
D-5	Control of Emissions from Residential and Commercial Water Heating [NOx]	Local Govt.	1990	New control measure
F-11	Emission Minimization Management Plan [All Pollutants]	District	1990	New control measure

APPENDIX I

RESPONSES TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

TABLE OF CONTENTS

Air Quality

Control Measures

Cost/Benefit Analysis

Emission Charges Strategy

Extension of Time

Implementation: Political Implications

Public Participation/Public Education

Mobile Sources

Modelling

SCAG RESPONSES:

Growth Management Plan

Regional Mobility Plan

Transportation, Land Use & Energy Conservation
Measures

ARB RESPONSES:

Mobile Sources

**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

AIR QUALITY

Comment: **Air Quality**

"the EPA bases its measurements on a worst case basis-which does not reflect the progress being made! Perhaps one of the aqmp goals should be to develop better procedures for measuring air quality progress accurately."

Commentor: **Chevron USA Inc.**

Response: Chapter II of the Draft 1988 AQMP briefly summarizes current Basin air quality and trends over the past decade. Progress towards attainment of the standard is noted. In Chapter II's brief summarization of trends, emphasis has been placed on the Basin's most affected areas, since it is these areas which will determine whether the standards are met. However, much more detailed information concerning all areas of the Basin is presented in Appendices II-A, II-B and II-C.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

CONTROL MEASURES

Comment: Tier I Control Measures-Solvents and Coatings

Oppose the regulation of paints, coatings and other substances when there are no adequate substitutes. It is difficult to justify replacing a product with one of a substantially lesser quality and which does not meet current needs or standards.

Extensive research prior to the switch-over to new coatings or solvents, or to the use of high transfer efficiency spray equipment must be allowed to continue under the revised AQMP.

Exempt and low reactivity solvents, in conjunction with control equipment, should continue to be permitted under the long range plan.

**Commentors: Temple City (9/23/88)
McDonnell Douglas (10/26/88)
Metropolitan Water District of So. California (10/27/88)**

Response: The AQMP uses a three-tiered approach to emission control: (1) application of known technology (Tier I); (2) advancement of current technology and application of vigorous regulatory intervention (Tier II); and (3) major technological breakthroughs or advancements (Tier III). This approach provides long term emission control targets and thus encourages technological development, advancement and improvement in the solvent and coating use category for Tiers II and III implementation. Control measures proposed in the AQMP will be further developed and adopted as the SCAQMD Board finds evidence that the control methods for an individual coating or solvent category are cost effective and technically feasible for implementation. Product quality will be one of the criteria used to determine technical feasibility, especially as related to safety concerns.

The implementation schedule does reflect the need for additional

CONTROL MEASURES

research and analysis prior to rule adoption. Research and development efforts for Tiers II and III measures will be conducted on an ongoing basis.

The use of exempt and low reactivity solvent products in conjunction with add-on control equipment are permitted under the long range solvent plan, provided the emission reduction goals specified are met.

* * * * *

CONTROL MEASURES

Comments: Tier I Control Measures-Solvents and Coatings

Control measures for Domestic Products, A-18 and A-19. Acceptance by the public may be eased if controls are placed on the producer, not the consumer of these products.

Across-the-board reductions of Volatile Organic Compound (VOC) content in consumer products or the banning of these products would not show any measurable improvement in environmental quality but would have an enormous cost impact.

Substitution of pump dispensers for aerosol sprays should be encouraged.

**Commentors: City of Laverne (8/19/88)
Chemical Specialties Manufacturers Association (10/27/88)
Air Quality Subcommittee to the SCAQMD (8/12/88)**

Response: Tier I measures A-18, "Control of Emissions from Underarm Products" and A-19, "Control of Emissions from Domestic Products" are aimed at the manufacturers of these types of products. Higher prices for these products may be passed on to the consumer as a result of the manufacturers assuming all costs for research, development, testing and marketing. Statewide adoption of a domestic products regulation may occur in 1992 as a result of Assembly Bill 2595. This may serve to make the new product development and marketing more cost effective and provide more stable consumer pricing as the state of California as a whole represents such a large economic power.

Reactive organic gas (ROG) emissions from underarm and nonunderarm consumer products combined represent one of the largest ROG sources in the basin, projected at about 136.9 tons per day in the year 2010. Reductions of up to 79.6 tons per day could be achieved through: (1) reformulation of aerosol propellants and solvent bases with low or exempt solvent compounds; (2) alternative application mechanisms such as pumps, sprays, or squeeze bottles; and (3) banning from the South Coast Air Basin any consumer product unable to comply with the reformulation or alternative application options. Statewide regulation through AB 2595, The California Clean Air Act of 1988, which requires the

CONTROL MEASURES

California Air Resources Board to adopt regulations for control of emissions from consumer products pending technical and commercial feasibility prior to January 1, 1992, will provide conformity across the state with respect to regulation of consumer products.

* * * * *

CONTROL MEASURES

Comments: Tier I Control Measures-Solvents and Coatings

Adoption of control measures A-11, "Substitute Solvents Used for Clean-up of Surface Coating", and A-12, "Further Emission Reductions from Metal Cleaning and Degreasing" may result in an increase of solid and hazardous waste generation.

Measure A-11, "Substitute Solvents for Clean-up of Surface Coating", the SCAQMD should identify the substitute solvents that are currently available on the market, and disseminate information to both small and large distributors of solvents.

Measure A-12, "Further Emission Reductions from Metal Cleaning and Degreasing", the SCAQMD needs to provide more viable and safe control methods. Consideration should be given to control measures delaying the implementation of this until a more marketable control device is developed.

Measure A-20, "Control of Emissions from Solvent Waste", It is recommended that the measure be expanded to include an educational program that will disseminate information on the disposal and handling of solvents.

Commentors: County of Los Angeles (8/11/88)
John Wayne Airport (8/15/88)

Response: Control Measure A-11: Substitute solvents available for the clean-up of surface coating will be based on the degree of photochemical reactivity and the volume percentage of individual components in the solvent. The measure will require lower vapor pressure clean-up solvent and/or water-based clean-up formulations in place of conventional petroleum-based solvents. The clean-up solvents formulated to meet the proposed requirements have been composed of a blend of solvents including, 1,1,1 trichloroethane, and methylene chloride. A decrease in evaporative solvent emissions from surface clean-up procedures and metal cleaning and degreasing may lead to the generation of an increased amount of liquid waste. However, portions of the waste material may be recycled on-site, or recovered and transported off-site for recycling, thereby decreasing the final volume of the liquid waste to be disposed. A number of the surface coating processes may require

CONTROL MEASURES

less extensive solvent clean-up due to implementation of increased transfer efficiency or improved operating methods. More efficient use of metal cleaning and degreasing solvents through implementation of those proposed control measures may result in a smaller overall volume of waste final overall requiring disposal. Source reduction and minimization of solvent wastes may also aid in minimizing the impact of the greater capture of solvent emissions.

Control Measure A-12: This measure is currently slated for adoption in 1989. The control methods listed in the measure include: (1) add-on controls; (2) posted operating requirements; (3) increased freeboard ratio; (4) eliminating exemptions; and (5) an outreach program. All are considered to be viable methods for controlling emissions of reactive organic solvents from metal cleaning and degreasing. Further, compliance with Occupational Safety and Health Administration (OSHA) & CalOSHA regulations regarding maximum ventilation of solvent vapors in work areas will be maintained.

Control Measure A-20: An outreach program for small and large generators of solvent wastes is included in this measure to disseminate information on waste reduction alternatives.

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CONTROL MEASURES

Comments: Tier I Control Measures-Solvents and Coatings

The AQMP fails to consider that regulation aimed at source reduction of specific hazardous-waste-generating substances would limit the available options for reformulating, while discouraging reformulating with non-exempt substances. The EPA and the Department of Defense have suggested that several non-exempt solvents may be suitable, biodegradable non-toxic, non-ozone-depleting replacements for chlorofluorocarbons and toxic chlorinated substances in electronic photoresist stripping, degreasing, and defluxing. Rule 1164, (Semiconductor Manufacturing) discourages the use of these non-exempt solvents when they are applied in a shower-type spray in a solvent cleaning station (section (c)1(C) of Rule 1164)

Commentor: Source Reduction Research Institute (10/04/88)

Response: The ROG reduction strategy for surface coating and solvent usage discussed in Tier I of the AQMP stresses the substitution of low- or exempt-solvent formulations for photochemically reactive solvents. Increased transfer efficiency requirements and improved operating practices will also be a part of a number of the measures for this category, and may lead to a reduction in solvent waste in the Basin as well. Control measure A-20, "Control of Emissions from Solvent Waste", utilizes waste minimization as a control technique not only to decrease ROG emissions, but also to decrease the volume of waste requiring disposal.

Tier II measures are directed toward demonstrated technologies which require further advancement or improvements which can reasonably be expected to develop within ten to fifteen years, such as further reformulation efforts, as well as the implementation of alternative non solvent-based coating or surface preparation techniques. Tier III measures will call first for the use of advancement of technology beyond known applications including, alternative non solvent-based technology, followed by the reformulation options and finally, banning if none of the other control techniques can be applied. Source reduction, waste minimization and solvent emission reduction goals may be able to be achieved in unison.

CONTROL MEASURES

Section (c)1(C) of Rule 1164 states that "VOC-containing materials in a solvent flow shall be applied only as a continuous unbroken stream and not as a dispersed, fine, atomized or shower type spray and the method of application shall prevent liquid losses through splashing." This condition is included in the rule to prevent the evaporative emissions of ROG or exempt solvent aerosols from fine or shower-type sprays, as well as maximizing the efficiency of the solvent being used. The use of shower-type solvent stripping, degreasing, and defluxing equipment in semiconductor manufacturing is prohibited in the Basin. Solvents approved for use in the semiconductor stripping, degreasing, or defluxing must meet the requirements of the rule regarding the degree of photochemical reactivity and vapor pressure and may not be limited to only those listed if further suitable formulations are available.

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CONTROL MEASURES

Comments: Tier I Control Measures-Solvents and Coatings

Implementation of measures regarding solvent and coating use such as new low VOC paints, higher transfer efficiency methods of application, and substitute solvents for clean-up will result in new paint products being used which will probably have a shorter life and result in higher cost to maintain the paint on ground equipment.

Commentor: Air Transportation Association (10/15/88)

Response: The new low VOC or exempt solvent coatings will require stringent testing before being released on the market to prevent coating surface failures. In a number of instances such as aerospace coating exacting performance specifications must be inherent in the replacement coating, as well as the products requiring Federal Aviation Administration (FAA) or Mil-Spec certification. The individual characteristics of replacement or reformulated coatings/solvents will be determined during product development and testing. In the case of shorter product life, the increased cost should be weighed against savings resulting from higher transfer efficiency application techniques which result in less wasted coating and decreased need for solvent clean-up.

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CONTROL MEASURES

Comments: Tier I Control Measures-Solvents and Coatings

The implementation of strategies which target the use of paints, solvents and coatings impose a serious financial hardship on industries. The control measures which are outlined in the plan will force closure of important industries. The result would be a substantial economic hardship in the Southern California area, especially The City of Commerce.

Commentor: City of Commerce (9/19/88)

Response: The economic impacts of the control measures targeting the use of paints, solvents, and coatings will be addressed qualitatively in the AQMP Final Environmental Impact Report (FEIR) and in subsequent rule proceedings. In general, however, the proposed control measures will rarely increase product cost and in some cases actually reduce costs.

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CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-1, Control of Emissions from Gasoline Transfer: Fail-Safe Phase-I Vapor Recovery Systems, the Fail-Safe Phase-I Vapor Recovery System is not commercially available.

Commentor: Mobil Oil Corporation (10/27/88)

Response: Although fail-safe phase-I vapor recovery systems have not directly been applied for gasoline transfer, similar fail-safe systems have been successfully utilized in transfer of hazardous fluids. The proposed control measure is scheduled for adoption by 1993. Actions will be taken between now and 1993 to ensure the technical feasibility prior to scheduled measure adoption. Development of failsafe Phase I systems appears feasible in the specified timeframe.

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CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-3, Control of Emissions from Open Sumps, Pits, and Wastewater Separators, may cause degradation of water quality.

Commentor: John Wayne Airport (8/15/88)

Response: Based on the ARB's Technical Support Document for Suggested Control of Organic Compound Emissions from Sumps Used in Oil Production Operations (June 1988), four available control technologies have been identified. They are: 1) flexible membrane floating covers, 2) rigid pontoon floating covers, 3) fixed dome covers, and 4) replacement by fixed roof tanks, all of which are capable of achieving up to 90 percent emission control efficiency. No adverse environmental impacts have been identified from the application of these control strategies with respect to air, water, plant or animal life. Retrofit of the existing sumps or separators with floating covers or replacement with storage tanks will, in fact, greatly reduce underground water contamination as well as soil contamination.

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CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-5, Control of Emissions from Cyclic Steam Production Wells, oil production facilities must have the prerogative of choosing the control method.

Commentor: Mobil Oil Corp. (10/27/88)

Response: The suggested control method, as indicated in the text, is either to shut off the well-head vent or to vent the emissions to a gas collection system, both capable of achieving about 100 percent reduction. The SCAQMD does not intend to mandate a specific technology. Control technologies which can demonstrate the same reduction efficiency, may be employed by oil production facilities.

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CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-7, Control of Emissions from Petroleum Refinery Fluid Catalytic Cracking (FCC) Units, the required level of reduction does not seem reasonable and can not be maintained on a continuous basis. The Basin is already in compliance with federal SO₂ standards; therefore, there is no need for additional SO_x reductions.

Commentors: Western Oil and Gas Association (10/27/88)
Mobil Oil Corp. (10/27/88)
ARCO (10/26/88)
Chevron (10/26/88)

Response: The proposed control methods to reduce SO_x emissions from FCC units are hydrotreating the feed or desulfurization of the flue gas. SCAQMD staff believe that the proposed reduction level can be achieved through the application of the above processes on a continuous basis. Hydrotreating the feed entering the FCC unit will reduce SO_x emissions which in turn will reduce particulate formation.

Even though the Basin is in compliance with the federal standard for sulfur dioxide, further SO_x emissions reductions are necessary to maintain the compliance status and to minimize the formation of sulfates as particulate matter. The anticipated SO_x emissions reductions from this source category (i.e., 15.8 and 16.3 tons per day in 2000 and 2010) would have a significant impact on SO_x as well as PM levels in the Basin.

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CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-9, Control of Emissions from Gas Fired Petroleum Refinery Process Heaters must be deleted from Tier I of the AQMP and be moved to Tiers II or III to await technological breakthroughs in order to guarantee that compliance can be consistently be met.

Commentors: Mobil Oil Corp. (10/27/88)
Western Oil and Gas Association (10/27/88)
ARCO (10/26/88)

Response: Currently, particulate emissions from refinery process heaters are uncontrolled and unregulated. In order to attain federal and state ambient air quality standards for particulate emissions, it is necessary to reduce PM emissions from all contributing sources. Control technologies (i.e., electrostatic precipitators (ESPs) and baghouses) are presently available to reduce PM emissions. Therefore, implementation of the proposed control measure, scheduled for adoption by 1992 is well within the timeframe of the Tier I control strategy.

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CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-10, Control of Emissions from Petroleum Refinery FCC Units, implementation of this control measure must be delayed until reasonable technology is proven capable of meeting tight standards on a consistent basis. A 45 to 50 percent reduction in PM emissions (in lieu of proposed 90 percent) is sufficient to achieve the national standard.

Commentors: Mobil Oil Corp. (10/27/88)
Western Oil and Gas Association (10/27/88)
ARCO (10/26/88)
Chevron (10/26/88)

Response: The proposed control technologies to control PM emissions from FCC units include hydrotreating the feed stream, improving operation of existing electrostatic precipitators and cyclones, or replacing the older equipment with new and more efficient models. SCAQMD staff believe that the above methods are capable of achieving the proposed 90 percent reduction.

Theroretically, an oveall 50 percent emissions reduction from direct PM emission sources and PM contributors (e.g., NOx and SOx) could achieve the national ambient air standard. However, there are some fugitive dust emission sources in which it would be technically and economically difficult to achieve a 50 percent reduction. Therefore, sources with know technologies need to be controlled to the maximum extent. Tiers I and II measures are needed to bring the Basin into compliance with the national PM10 standard. Far more PM reductions are needed to achieve the state standard. Further discussion on PM10 emission reduction is contained in the response titled "Alternative Control Strategy".

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CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-11, Control of Emissions from Outer Continental Shelf (OCS) Exploration, Development, and Production, the SCAQMD does not have jurisdiction over OCS operations.

Commentors: Mobil Oil Corp. (10/27/88)
Western Oil and Gas Association (10/27/88)

Response: The SCAQMD is presently participating in the rule-making negotiations process with the Mineral Management Service (Division of U.S. Department of Interior), EPA, ARB, and petroleum industry. According to Chapter 6 of the AQMP, this control measure is proposed for adoption by state/federal governments by 1993.

CONTROL MEASURES

Comment: Tier I Controls - Petroleum and Gas Production

Control Measure CM #88-B-13, Further Emission Reductions from Valves, Pumps, and Compressors Used in Oil and Gas Production Fields, Refineries, and Chemical Plants, technologies to meet the required reduction levels in this measure are not fully developed. The 3-year leakless equipment replacement schedule on thousands of pieces of equipment in a single refinery is unreasonable and should not be implemented. Rule limits must be adjusted to reflect the large difference in sensitivity between the use of hexane and methane as the reference compound.

Commentors: Mobil Oil Corp. (10/27/88)
Western Oil and Gas Association (10/27/88)
ARCO (10/26/88)
Chevron (10/26/88)

Response: The proposed control measure is currently under rule development process as proposed Rule 1173. The proposed rule relies heavily on a more stringent inspection and maintenance program. Under the requirements of the current version of the rule (10/25/88), all valves, pumps, compressors, and pressure relief valves must be clearly and visibly identified for inspection, repair, replacement, and housekeeping purposes. Inspection must be performed at specified time limits, and repair/replacement actions must be implemented within a required timeframe. Records of inspection and repairs (or replacements) must also be submitted to the SCAQMD. In addition, any equipment subject to five repair actions for a liquid leak or a major gas leak within one year must be replaced with BACT or be vented to an approved air pollution control device.

The proposed control measure B-13, in Appendix IV-A, will be revised to propose a more stringent inspection and maintenance program, as indicated by the proposed Rule 1173, since there is uncertainty about the availability of leakless equipment (proposed in the original version) for all types and sizes of equipment subject to this measure. The use of leakless equipment as BACT could still apply to equipment with five repair actions, where available. The 3-year leakless equipment replacement is subsequently deleted from the control measure.

CONTROL MEASURES

According to the proposed Rule 1173, new leak levels (major and minor gas leaks) are based on methane as the reference compound.

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CONTROL MEASURES

Comment: Tier I Controls - Commercial and Industrial Processes

Control Measure CM #88-C-2 (previously C-12, re-numbered as C-2), Control of Emissions from Non-Utility Internal Combustion Engines, replacement of all internal combustion (IC) engines with electric motors should not be mandated for emergency situations. Sanitation Districts use digester gas, a by product of wastewater treatment, in IC engines to generate on-site electric power.

Commentors: Southern California Gas Company (10/24/88)
Orange County Sanitation SCAQMD (10/27/88)

Response: The intent of the proposed measure is to require that all non-power generating internal combustion engines not used for emergency standby be phased out and replaced with electric motors. Therefore, specific provisions for emergency situations (e.g., blackout) would be considered during the rule-making process.

Application of the proposed control measure in digester gas fired IC engines would be further evaluated to determine the extent of digester gas usage in wastewater treatment plants and provide possible alternative control approaches.

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CONTROL MEASURES

Comment: Tier I Controls - Commercial and Industrial Processes

Control Measure CM #88-C-7, Control of Emissions from Small Boilers and Process Heaters, the proposed radiant burners are not applicable to natural draft water tube boilers.

Commentor: Southern California Gas Company (10/24/88)

Response: The proposed radiant tube burner is only one of the suggested alternatives to achieve the required reduction. Other available control methods include control technologies such as advanced boiler design, combustion modification, and stack gas treatment technologies, and use of alternative fuels. Radiant burners have been applied successfully to a wide variety of industrial uses including firetube boilers, fired immersion heaters, process heaters, and also commercial water heaters. Natural draft water tube boilers may, however, be difficult to retrofit with radiant burners due to the pressure drop in these burners and because of space limitations. Industry has the option of choosing the BACT most appropriate for its specific application, and is not limited to use of radiant burners. Advanced natural gas technologies will also be considered as long as the required emissions reduction can be met.

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CONTROL MEASURES

Comment: Tier I Controls - Commercial and Industrial Processes

Control Measure CM #88-C-10, Control of Emissions from Electric Power Generating Boilers, simultaneous retrofit of many facilities in the short period may disrupt the electric supply to the Basin. It is not clear what constitutes an alternative control plan.

Commentor: California Energy Commission (10/27/88)

Response: The proposed control measure as proposed Rule 1135 is currently being evaluated to address specific concerns and issues. Under the current version of the proposed rule, utility boilers must comply with a NOx emission limit of 0.03 pounds per million bio-thermal unit (BTU) by July 1992. At present, more than 80 percent of the required power in the Basin is imported from out of the Basin. Power generating boilers and turbines in the Basin provide the remaining power and normally operate at less than maximum capacity resulting in surplus power which can be used in case of high power demand. In order to avoid disruption of the electric supply systems, retrofit can be scheduled on a facility by facility basis so that the lost power due to the retrofit process can be offset by increasing operating capacities of other boiler units, at the same facility, not engaged in retrofitting at the time.

The alternative emission control plan, as prepared by the owner or operator of the facility, must demonstrate compliance with the proposed rule requirements, by achieving equivalent NOx emission reductions through alternative control methods. The alternative emission control plan must include all data, records, and information (e.g., number of boilers, hours of operation, estimated NOx emissions, and maximum rated boiler capacity) necessary to determine eligibility for alternative emission control. The SCAQMD would determine eligibility on the basis of proven need for such a plan.

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CONTROL MEASURES

Comments: Tier I Control Measures-Residential and Public Sector

Control Measures D-2, "Application of Solar Panels on Residential Water Heaters", and D-3, Application of Heat Transfer Modules on Residential Heating Furnaces are very cost ineffective and would raise housing costs..

Application of solar panels on residential water heaters can be accomplished with a cost savings to the consumer, and is a viable method for residential water heating supplemented by natural gas.

Commentors: The Irvine Co. (8/19/88)
City of Costa Mesa (9/07/88)
Calif. Solar Energy Industries Assoc. (10/10/88)

Response: The proposed control measures have been deleted due to the high cost of the control technique, as a result of the low cost of natural gas, the low level of NOx emissions from this source category, and low fuel consumption by these sources. However, the SCAQMD does recognize the energy conservation value of solar energy and will further study the cost-effectiveness of its substitution for applications commonly employing natural gas or electricity, such as residential water heating or swimming pool heating.

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CONTROL MEASURES

Comments: Tier I Control Measures-Residential and Public Sector

Inclusion of control measure D-5 "Out of Basin Transport of Biodegradable Solid Waste" in the AQMP will prevent the siting of new landfills in the South Coast Air Basin and appears unrealistic.

Two of the best alternatives available for waste disposal in the South Coast Air Basin include, recycling and transport of biodegradable solid waste out of the Basin by electric rail.

Control Measure CM #88-D-5 does not provide any consideration of waste recovery facilities.

Commentor: County Sanitation Districts of Los Angeles (10/27/88)
American Lung Assoc. of San Bernardino (10/12/88)
City of Duarte (10/25/88, 10/27/88)
City of Costa Mesa (9/07/88)

Response: At the time measure D-5 was proposed for inclusion in the AQMP, the Solid Waste Management Plan was not available for review. The SCAQMD was unaware that the Solid Waste Plan called for expansion or siting of new waste disposal facilities within the Basin. The increased solid waste disposal capacity will only serve to increase landfill gas emissions (both escaping gas and flaring). Transportation out of the Basin by electric rail is the only control method able to eliminate solid waste decomposition as a source of emissions. If this control measure is not adopted for the landfill category, greater emission reductions will have to be achieved in other source categories to compensate for the increased emissions from this source. The construction of RDF (refuse derived fuel) plants can eliminate combustible waste, while producing electricity, but if located in the Basin, will only result in a new source of emissions. A coordinated effort or interagency task force between the SCAQMD and the County Sanitation Districts of Los Angeles may be required to further examine this control technique in regard to the air quality and the solid waste management goals of the two agencies. Source separation, waste minimization and recycling are discussed in measures proposed by SCAG and are being implemented to a degree in a number of areas. Measure D-5 is intended to apply to biodegradable waste which would otherwise be disposed of in landfills.

CONTROL MEASURES

Comment: Tier I Controls - Residential and Public Sectors

"...the proposal here is for large solar arrays to be placed in low cost land areas and out in the desert and to be piped in, just as our water is piped in by aqueduct, or oil and gas is piped in hundreds of miles.

Commentor: Public Solar Power Coalition (10/12/88)

Response: The SCAQMD is seriously considering the use of solar energy in an effort to reduce NOx emissions from fossil fuels. Control measures D-4 (Emission Reductions from Commercial/Residential water heating) and D-5 (Emission Reductions from Heating Swimming Pools), and application of solar energy proposed in these control measures are examples of such efforts.

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Comment: Tier I Control Measure-Fugitives from POTW'S

The effectiveness of activated carbon in adsorbing trace organic gases from wastewater treatment processes is limited to very light compounds. There is no known use of activated carbon cannisters to control fugitive organic emissions by POTW'S in the United States.

**Commentor: Orange County Sanitation Districts (10/27/88)
Los Angeles County Sanitation Districts (10/27/88)**

Response: Control Measure D-6, "Control of Fugitive Emissions from Publicly Owned Treatment Works", provides two options for control of fugitive ROG emissions from these sources. The first method involves more stringent influent standards entering the treatment plant. This not only reduces ROG emissions at the plant, but also emissions that occur from the sewer lines as the wastewater travels to the treatment plant. The second control approach involves capture of fugitive ROG emissions created by the solubilization of organic materials through the use of add-on control devices. The use of carbon cannisters is not mandated in the measure, however, carbon adsorption columns, or scrubbers have been used in similar applications. A number of POTW'S already have enclosed systems which are vented to add-on devices for odor control. There is also a trend toward using "100 Percent" secondary treatment, which requires enclosing open wastewater systems and could facilitate the use of add-on control devices.

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CONTROL MEASURES

Comment: Tier I Controls - Residential and Public Sectors

Control of Emissions from Gas Powered Air Conditioning Units

Commentor: Air Resources Board

Response: The AQMP does not contain a specific control measure for gas powered air conditioning units because the SCAQMD is not aware of any such applications. Should air conditioning units be gas fired in the future, emission limits will be developed similar to the SCAQMD's Rules 1111 and 1121 for gas fired central furnaces and gas fired water heaters.

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CONTROL MEASURES

Comment: Tier I Controls - Agricultural Processes

Control Measure CM #88-E-2, Control of Emissions from Livestock Waste, watering of manure piles to control fugitive dust emissions would increase groundwater impact.

Commentor: Metropolitan Water SCAQMD (10/27/88)

Response: The proposed measure to control ROG, PM, and ammonia emissions from livestock waste provides several options: 1. improving housekeeping practices to promote aerobic rather than anaerobic conditions on the animal feed yard floors, run-off holding ponds, and manure stockpiles; 2. transport of manure out of the Basin to be used by farmers; 3. sewage treatment of slurred liquid waste; 4. anaerobic digestion, and 5. addition of water or other binders to suppress the dispersion of particles into the air. In areas where groundwater contamination is critical, other options are available to achieve the intended emission reductions. Therefore, much of the potential water quality degradation in the Santa Ana Watershed Basin can be mitigated. Nevertheless, watering of composting operations, as well as other control methods, will be fully evaluated during the rule development process to determine potential adverse impacts. As indicated in the text, water application must be carefully evaluated in order to prevent pollutants from leaching into the groundwater.

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Comment: Tier I Controls - Agricultural Processes

Control Measure CM #88-E-3, Control of Fugitive Dust from Agriculture, add a SCAG policy to require all cities to adopt a tree planting plan.

Commentor: City of Chino (7/29/88)

Response: Tree windbreaks are considered as an option to control fugitive dust, especially for rural areas to control wind erosion dust from agricultural fields and disturbed desert areas. Control measure E-3 of the AQMP does specify tree planting as a means to control agricultural fugitive dust in the rural areas. Experience shows that the control effectiveness of tree windbreaks in the Southeast desert portion of the SCAQMD is about 15 to 25 percent. The efficiency of tree windbreaks depends on factors such as the number of rows and the type of tree species planted. The rate of growth governs the extent of protection that can be expected in later years. There are no data on the effectiveness of tree windbreaks to control fugitive dust in the urban areas. The District is currently conducting a study to investigate the feasibility of controlling fugitive dust by tree windbreaks. A control measure to adopt tree planting plan may be proposed based on the study results.

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CONTROL MEASURES

Comments: Fugitive particulates from forest fires

Further study of forest fire prevention and fire fighting techniques is suggested to help reduce summertime particulate and visibility problems.

The Los Angeles County Forester and Fire Warden must be allowed to continue their Vegetation Management Program and proper use of prescribed fire under a stage one Variance.

Commentors: City of La Verne (8/19/88)

**County of Los Angeles, Chief Administration
Office (8/12/88)**

Response: There is no provision in the 1988 AQMP Revision regarding prescribed forest fires, and current practices may be continued in compliance with the provisions of the SCAQMD Rules 208 and 444.

Current District Rules 208 and 444 controls open burning, including agricultural burning and open fires used in forest management and range improvement. Rule 444 subsection (d), does not allow open burning when prohibited by Regulation VII or in any "Geographical Area" of the District when open burning in that area is prohibited due to adverse meteorological conditions. A list of the geographical areas and specific meteorological conditions for each area is maintained and available to the public at the SCAQMD Headquarters.

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CONTROL MEASURES

Comment: PM₁₀ Control Measures F-2, F-3, F-10, I-5, B-7, B-9, and B-10

Because of the Basin's attainment of the sulfur standards, AQMP proposed control measures to further reduce sulfur compounds emissions should be evaluated as to their effectiveness as a PM₁₀ control measure, not as a control measure for acid rain or visibility.

Commentor: Western Oil and Gas Association (WOGA)

Response: The AQMP proposed control measure to control and/or further reduce sulfur compounds emissions are to maintain sulfur standards, as well as, to reduce PM₁₀ secondary emissions. Sulfur compounds (SO_x) are accounted for 8 to 15 percent of the PM₁₀ in the SCAQMD.

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Comment: Tier I Control Measures

It seems that a lot of the reduction in PM is being deferred. Due to the obvious health effects, the SCAQMD should look hard at the most promising techniques such as tree windbreaks to reduce PM emissions.

Commentor: American Lung Association of San Bernardino (10/12/88)

Response: There are control measures in the AQMP to control directly emitted and secondary sources of PM₁₀ emissions. However, due to the contribution of various species to PM₁₀ concentrations, it will be more complex to plan a control strategy to attain PM₁₀ standards.

The SCAQMD is currently conducting an investigation to study techniques, including tree windbreaks, to control fugitive dust emissions. Tree windbreaks are considered as an option to control fugitive dust, especially wind erosion dust from agricultural fields and disturbed desert areas. Control measure E-3 of the AQMP does specify tree planting as a means to control agricultural fugitive dust in the rural areas.

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CONTROL MEASURES

Comment: Tier I Controls - Installation of Best Available Retrofit Control Technology (BARCT)

Control Measure CM #88-F-1, Installation of Best Available Control Technology, the emissions inventory presented in this control measure assumes uncontrolled emissions from all equipment types. The emissions inventory should be corrected to include reductions achieved through existing regulations including Rules 1109, 1110.1, 1112.1, 1117, and 1146.

Commentor: Southern California Gas Company (10/24/88)

Response: The proposed measure F-1 is included in Tier I of the plan as a method to obtain emissions reductions for existing equipment for which control technology is available on a retrofit basis and either (1) is not required to use such technology under current SCAQMD rules or (2) would not be required to use such technology under any of the other Tier I control measures included in the AQMP. The existing equipment may be already using some emissions control technology. The emissions data presented with this measure is only for existing equipment meeting the criteria described above; it does not include all types of equipment and excludes equipment subject to Rules 1109, 1110.1, 1112.1, 1117, and 1146. This measure includes emission reductions on existing equipment which would not otherwise be controlled, thus providing a more equitable sharing of the emissions reduction burden as requested in the comment. There is no need to change the emissions data in the measure since the emissions data correctly reflect the equipment to be controlled and the AQMP already accounts for the emission reductions from other measures.

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CONTROL MEASURES

Comment: Tier I Controls - Liquid Fuel Sulfur Content

Control Measure CM #88-F-3, Lower Limits on Sulfur Content of Stationary Liquid Fuels, must be adopted in place of control measure F-10, Phase-Out Stationary Source Fuel Oil and Solid Fossil Fuel Use.

Commentors: Mobil Oil Corp. (10/27/88)
Western Oil and Gas Association (10/27/88)

Response: The control measure F-3 is intended to reduce SOx emissions by lowering sulfur content in liquid fuels. Various control methods available to meet more stringent sulfur limits are hydrosulfurization, blending, and modification of crude slates. This measure will be implemented: 1) in case the F-10 measure fails to be adopted, or 2) to cover exemption provisions provided by the oil phase-out measure.

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CONTROL MEASURES

Comment: Tier I Controls - Fugitive Dust Control from Construction of Roads and Buildings

Control Measure CM #88-F-4, control of Fugitive Emissions from Construction of roads and Buildings, using reclaimed water for dust control should be strongly considered prior to adoption.

Commentor: City of Costa Mesa (9/7/88)

Response: The feasibility of using reclaimed water is seriously considered and encouraged by the SCAQMD to minimize the impact of watering on dust control from construction sites.

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Comment: PM₁₀ attainment of standards

Select cost effective dust controls such as street vacuuming, controls at construction sites, and wind breaks.

Commentor: Southern California Edison Company (10/27/88)

Response: Although windbreaks are suggested to control wind erosion fugitive dust from disturbed desert surface and agricultural fields in rural areas, the estimated 15 to 25 percent control efficiency of these control measures is not high enough to control the 50 percent directly emitted PM₁₀ dust in the SCAQMD, and additional controls are required as well.

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CONTROL MEASURES

Comment: Tier I Controls - Ammonia Emissions

Control Measure CM #88-F-5, Control of Ammonia Emissions from Stationary Sources by Permits and Fees, it is not clear how emission reductions can be achieved through permits and fees.

Commentor: Western Oil and Gas Association (10/27/88)

Response: The proposed control measure is intended to identify ammonia emission sources and to provide an emission inventory for this source category by bringing them into the SCAQMD's permit and fees systems. The interest in determining the amount of ammonia emissions is due to the formation of PM₁₀ particles, in the form of ammonium nitrates, as a result of chemical reactions between ammonia and NO_x molecules. After the emission inventory is developed for this source category, BACT and BARCT could be required for new as well as existing ammonia emission sources to reduce ammonia emissions.

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CONTROL MEASURES

Comment: Tier I Controls - Soil Decontamination

Control Measure CM #88-F-7, Control of emissions from Soil Decontamination, would result in further delay of identification and replacement of underground storage tanks and cleanup activities of hazardous waste contaminated sites. The measure may also result in an increase of solid and hazardous waste generation.

Commentor: County of Los Angeles, Department of Public works (8/11/88)

Response: The subject control measure was adopted on August 5, 1988 as Rule 1166. Based on the adopted rule, the owner or operator of an underground tank storing VOC, and also a person treating or handling VOC-contaminated soil must notify the SCAQMD at least 24 hours prior to tank excavation or within 24 hours of detection of VOC contaminated soil, respectively, and must implement SCAQMD approved mitigation measures which result in best available control efficiency. The SCAQMD's Engineering Division is committed to process the required permits or provide written approvals of these mitigation measures in a timely manner in order to avoid any delays of tank replacement or cleanup activities.

The SCAQMD provides several alternatives for the owners/operators to consider to achieve compliance with the rule requirements, including underground collection and disposal systems, on-site collection and disposal equipment, and other equivalent control measures as approved by the SCAQMD. The intent is to discourage off-site disposal and treatment of VOC contaminated soil, and to promote environmentally acceptable methods in treating VOC contaminated soil. Therefore, the impact of this measure on solid waste landfills is very limited.

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CONTROL MEASURES

Comments: **Tier I Controls - New Source Review**

Control Measure CM #88-F-8, New Source Review

- 1) The measure discourages industrial modifications and/or expansions and installation of cleaner equipment. Emission offsets should be allowed to be moved from west to east. Specific alternatives to the measure must be considered.
- 2) The measure would restrict or prohibit development of waste incineration facilities.
- 3) The proposed rule should combine emissions from stationary and mobile sources when permitting individual businesses and industries.
- 4) The proposed rule would prevent the construction of the size and type of facilities necessary to produce and distribute methanol.

Commentors: **Los Angeles Chamber of Commerce (8/15/88)**
 McDonnell Douglas (10/26/88)
 Port of Long Beach (11/2/88)
 Jeb Stuart (10/24/88)
 Federation of Labor (10/28/88)
 California Energy Commission (10/27/88)
 L.A. County, Department of Public Works (8/11/88)
 Inland Empire Economic Council (7/8/88)
 Riverside County Transportation Commission
 (8/17/88)
 California Manufacturers Association
 (10/27/88)

Responses: The intent of the New Source Review (NSR) is to require the installation of BACT and to offset the emission increases from new and modified facilities, as well as support the job housing element of the AQMP.

Specific issues concerning the proposed NSR are being evaluated during the rule development process, and will be resolved prior to final rule adoption.

CONTROL MEASURES

Comments: Tier I Control Measures-Low Emission Building Materials

Adoption date of 1991 for control measure F-9 "Low emission Methods and Materials for Building Construction" is unrealistic based on the information known about building materials emissions to quantify any potential reduction that may occur.

Commentors: City of Costa Mesa (9/07/88)
The Irvine Company (8/19/88)

Response: Although extensive information has not yet been obtained regarding ROG and PM emissions from various building methods and materials, information obtained to date indicates that a number of lower emission building construction products and/or processes are currently available for substitution, and that others will become available with the market demand created by the increasing need to reduce reactive solvent and particulate matter emissions. This measure as written, seeks use of only those known processes which are the lowest emitting.

AQMP proposed control measures 12.a, "Storage and Movement of Fine Particulate Matter", measures 8a, "Further Emission Control on Architectural Coating", and 8b, "Emission Charges on Architectural Coatings", C-6 "Control of Emissions from Wood working Operations" and A-2, "Further Emission Reductions from Wood Furniture and Miscellaneous Wood Products Coating", all involve processes similar to those used in building construction and are slated for adoption prior to 1991. These measures may identify new processes which emit even lower PM and ROG. Initial adoption would cover only known low emitting processes; later revisions could include new processes as they become available.

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CONTROL MEASURES

Comments: Tier I Controls - Fuel Oil Phase-Out

Control Measure CM #88-F-10, Phase Out of Fuel Oil, Distillates, and Solid Fossil fuels in Stationary Sources

- 1) Provide exemptions for the use of fuel oil in emergency generators.
- 2) Provide exemptions for the use of fuel oil as alternative fuel for hospital boilers.
- 3) Phasing out fuel oil will diminish gas-to-oil competition, and therefore, the natural gas prices will increase.

Commentors: Hospital Council of Southern California (8/30/88)
La Habra Community Hospital (9/13/88)
Antelope Valley Hospital Medical center (9/14/88)
California Medical Center (9/15/88)
Desert Hospital (9/19/88)
Eisenhower Memorial Hospital (9/22/88)
Downey Community Hospital (9/23/88)
Corona Community Hospital (9/24/88)
Brotman Medical Center (9/28/88)
Hi-Desert Medical Center (10/3/88)
Public Utilities Commission (10/27/88)

- Responses:**
- 1) Specific issues pertaining to the proposed control measure are currently being evaluated by the SCAQMD's Technology Advancement Office. Also, during the rule development process, considerations will be given to address specific concerns associated with this measure (e.g., life threatening situations and essential public service applications).
 - 2) Institutional boilers (e.g., in hospitals) with a rated heat input capacity of equal to or greater than 5 million BTU per hour are subject to the recently adopted Rule 1146. Based on the adopted rule, these boiler units are required to meet the 40 ppm NOx limit at all times. Compliance with the required NOx limit would require hospital boilers (mostly natural gas fired),

CONTROL MEASURES

to be retrofitted with control technologies including flue gas recirculation and low-NO_x burners. During a natural gas curtailment, however, compliance would be very difficult and costly if fuel oil is to be used as the alternative fuel, requiring a combination of various control techniques. Alternative clean fuels (e.g., propane or methanol) can be used as alternative fuels for hospital boilers capable of achieving the required NO_x limit more efficiently and with only minor boiler modifications. Rule 1146 would encourage elimination of fuel oil use in hospital boilers as an alternative fuel, and therefore, the impact of the proposed oil phase out measure on these boilers would be minimum.

Hospital boilers with a rated heat input capacity of less than 5 million BTU per hour would be impacted by the proposed oil phase out measure. However, exemption provisions in regard to these small boilers (e.g. technology and cost) will be addressed during the rule-making process.

- 3) The SCAQMD is presently evaluating various impacts of the proposed fuel oil phase-out measure on the energy markets including the natural gas market. Based on current findings, it appears that phasing out the fuel oil in the Basin will not increase natural gas prices because of the existing gas-to-gas competition. This competition places a restraint on gas prices independent of the fuel oil market.

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CONTROL MEASURES

Comment: **Inclusion of an Emission Management Rule**

The SCAQMD should include a Comprehensive Management Rule in the AQMP, similar to Regulation VII (the ridesharing rule).

Commentor: **The Sierra Club (11/2/88)**

Response: The SCAQMD has included an emission management measure for in the AQMP measure. The proposed measure would require that facilities further identify direct and indirect sources of emissions for reduction beyond mandatory requirements. Control methods to achieve the additional reductions may include changes in work schedules, energy conservation, solvent reduction/waste minimization, or other innovative ideas. Facilities applying for permits to operate or construct would be required to certify on the application that an Emission Minimization Management Plan has been developed, including a facility evaluation, a current emission inventory, and process or procedural changes under consideration which could reduce emissions. Preparation of such a plan would allow facilities to demonstrate their individual commitment to improved air quality in the Basin, while providing flexibility in the category and method of reduction.

CONTROL MEASURES

Comment: Tier II and Tier III Controls

- 1) The District should not commit now to a specific set of measures which reach beyond the limits of current technologies, and which may collectively prove to be less than optimal in the future. Instead, it should provide for the development of the technical basis upon which future air quality policies can be founded. The Tier II and III measures need to be the subject of additional investigation during the next five years for inclusion in subsequent AQMP revisions.
- 2) The Tier II and Tier III control measures, which are vague and based on unrealistic assumptions, should not be adopted at this time.
- 3) The Tier III electrification should be moved to the contingency measure section as it brings many technological, legal, and practical issues that require extensive consideration.
- 4) Current technology does not exist to implement control measures suggested in Tier II and Tier III. How can the AQMP legislate the use of undeveloped technology?

**Commentors: Southern California Gas Company (8/16/88)
California Manufacturer Association (TR 10/27/88)
Chevron U.S.A., Inc. (TR 10/12/88)
City of Santa Ana (TR 10/27/88)**

CONTROL MEASURES

Response: Tier II and Tier III control strategies are included in the draft plan to provide research and development guidelines. Technologies identified in Tier II and Tier III will be subject to further analysis and development prior to implementation. They also provide a reference for future emission reduction targets. Therefore, any technology that can achieve the required emission reduction cannot be excluded. Since the air basin cannot attain all the air quality standards with known technologies, it is critical that the SCAQMD identify in the early stages what levels of control are necessary to achieve the clean air goal. Then, all the involved parties can work together to develop the optimal control technologies. The draft AQMP will be revised every two years to incorporate the latest developments and findings in air pollution control.

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CONTROL MEASURES

Comment: Emission Reductions-Electric Vehicles

The Draft AQMP and EIR underestimates emission reductions likely to occur with the introduction of electric vehicles.

Commentor: Southern California Edison (10/27/88)

Response: Electric vehicles are capable of controlling 100 percent of the emissions from vehicles. However, tailpipe emission controls proposed in Tier I of the AQMP are projected to control motor vehicle emissions with an efficiency near 40 percent for NOx , and 75 percent for ROG. The remaining motor vehicle emissions are credited for reduction in Tier II and III through the proposed electric vehicle measures. Thus, the reduction credits are not double counted, but separated and applied to Tiers II and III.

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CONTROL MEASURES

Comment: Alternative Control Plan

An alternative AQMP should be evaluated which takes into consideration energy conservation and the use of alternative fuels, combined with slow growth. The SCAQMD should halt issuing permits and call for no more polluting.

Commentor: Environmental Protection Consultants (TR 10/27/88)

Response: The AQMP does contain elements such as energy conservation, alternative fuel use, new source review, and growth management. They will be further developed to incorporate new information made available to the SCAQMD or as new technology evolves.

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Comment: Solar Power Technology

- 1) Solar technology should be exploited to the fullest extent before costly and polluting out-of-basin power plants are constructed.
- 2) Solar energy is the most effective BACT/BRAC for reducing NOx and other emissions.

**Commentors: League of Women Voters (TR 10/24/88)
Public Solar Power Coalition (TR 10/22/88)**

Response: AQMD agrees that non-polluting, renewable solar energy should be utilized to the fullest extent technically and economically possible. The AQMP has proposed using solar panels for water heating in residential and commercial sectors, and for swimming pools. Solar power also plays a significant role in the Basin's energy future, if electrification is to take place. The SCAQMD will work with the CEC, the PUC, utilities, and other interested groups to promote the use of solar energy, and to further advance its applications in an efficient, economical, and reliable manner.

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CONTROL MEASURES

Comment: **Solar Energy Measure Development**

A program of developing a potential for solar energy should receive as much attention in the plan, if not more than some of the others that are currently listed.

Commentor: **Coalition for Clean Air (10/27/88)**
 Edward H. Waldheim (10/24/88)
 Public Solar Power Coalition (10/12/88, 10/27/88)
 League of Women Voters (10/26/88)

Response: Further study will be required regarding development of a program to adopt solar power. However, the SCAQMD recognizes the energy conservation value of solar power as a substitute for applications commonly employing natural gas or electricity, as well as the potential for NO_x reduction from conventional combustion energy sources. As a result, two measures involving the use of solar energy will be included in the AQMP. Proposed measure D-4, "Control of Emissions from Residential and Commercial Water Heating", is aimed at reducing NO_x emissions from natural gas water heating. The measure will require installation of flat plate solar collectors on new or replacement water heating systems in residential or commercial establishments. Conventional water heaters would continue to supplement the solar component. Measure D-5, "Control of Emissions from Swimming Pool Heating" requires new or existing swimming pool heating systems be replaced with flat plate solar collectors. Again, conventional water heating systems would be used as a system backup.

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CONTROL MEASURES

Comments: **Electrification**

- 1) Replacement of fossil fuel use in the basin with electricity would necessitate significant new electric generation capacity, essentially exporting our pollution problems.
- 2) Biased approach toward electrification and methanol excludes possible use of viable alternatives (e.g., advanced natural gas technologies)
- 3) Appendix IV-B: Energy Future presents false impressions: 1) that electrotechnologies are commercially available; 2) the costs of electrification are modest and may actually result in energy and cost savings; 3) electrification would cause little impact on the Basin's manufacturing sector.
- 4) The AQMP does not appear to be concerned with source energy efficiency or carbon dioxide emissions from power plants.
- 5) Electrification would cause emission increases in areas outside the basin and may require building of additional nuclear power plants.
- 6) How can implementation strategies be proposed without the completion of preliminary analysis or the identification of national and regionally significant impacts to existing energy sources? (For example: Conversion to an all electric basin is proposed without identification of additional power sources).
- 7) The AQMP does not address the difficulties involved with planning, financing, permitting and constructing the new resources called for in Tier III.
- 8) Cooperation between the SCAQMD, CPUC, CEC, and various other concerned agencies and basin electric utilities will be essential in achieving a successful electrification program.

CONTROL MEASURES

Commentors: American Gas Association (10/25/88)
Blue Diamond Materials (10/11/88)
California Energy Commission (TR 10/27/88)
City of Santa Ana (TR 10/27/88)
Southern California Edison (10/27/88)
Southern California Gas Company (TR 10/24/88)
League of Women Voters (TR 10/24/88, 10/25/88, 10/26/88, 10/27/88)
Orange County Board of Supervisors and the County Administrative Office (10/27/88)
Mr. Herbert Spencer (TR 10/24/88)

Response: According to the AQMP analysis, in order to attain the clean air standards, the air basin needs to use very low emitting vehicles (e.g., as clean as electric vehicles) to replace all gasoline powered light- and medium-duty vehicles (Tier II and Tier III) for ROG control purposes. Also, to the extent technically and economically feasible and in an energy efficient manner, industrial combustion sources would be further controlled to reduce NO_x emissions to attain the NO_x and PM₁₀ air standards. The draft plan calls for electrification of internal combustion (I/C) engines and utility equipment as Tier I controls. In Tier II, 50 percent of remaining fuel combustion emissions from industrial sources after Tier I needs to be eliminated. The control technology being contemplated is electrifying combustion processes. Note that if reductions can be achieved without electrification, the AQMP does not prohibit such controls. Assuming electrification is to take place, electrification the additional energy demand for the air basin by the year 2010 due to electrification is revised as follows:

CONTROL MEASURES

Table 1 - Energy Forecast for
AQMP Electrification Strategy
(Year 2010)

Electrification Measures*	Energy(GWh/Yr)	Capacity(MW)	
		AM	PM
Tier I	2,500	300	200
Tier II	18,000	1,400	2,700
Tier III	40,000	2,700	6,300
Total	60,500	4,400	9,200

* Tier I electrification measures: I/C engines, utility equipment, cold ironing, transit buses, and railroads. Tier II targets: Reducing the remaining emissions from industrial fuel combustion sources after Tier I by 50 percent; 20 percent passenger electric vehicles (@ 0.75 kwh/mile). Tier III goals: 100 percent passenger electric vehicles (@ 0.5 kwh/mi).

SCAQMD's preliminary analysis of power supply indicates that the daytime power demand can be met by using solar power and achieving 15 percent energy conservation in the residential and commercial sectors (part of SCAG's energy conservation measures) by 2010. This target is achievable and should be aggressively pursued especially through application of solar heating, heat pumps, and the best available energy-efficient technologies for residential gas-fired water heaters and furnaces, commercial lighting, and air conditioning (per CEC comments). It is also reasonable to believe that a certain portion of electric vehicles would be powered by solar or fuel cells because the large market demand will become a significant driving-force to bring about EV technology advancement and performance improvements. This will relieve some pressure on the electric utility supply system. Nighttime battery charging for EVs should use excess power capacity during off-peak hours (nighttime) from the projected available in-basin and out-of-basin energy resources by the year 2010, before planning for constructing new power plants. Nighttime hydropower from out-of-state sources should also be pursued to the extent possible to offset the nighttime demand. The remaining demand could then be met by fuel cells and by repowering of existing in-basin older units with advanced combined

CONTROL MEASURES

cycle technology (about 60 to 70 percent of existing system heat rate). To summarize the discussion on power supply, the District suggested supply options are illustrated below:

Table 2- Potential Power Supply Matrix
for the Basin

	Capacity(MW)	
	AM 4,400	PM 9,200
Demand		
Supply		
<u>In-Basin:</u>		
Conservation	1,900	900
Solar Power	1,500 ~ 2,000	
Solar/Fuel Cell		
EVs	300 ~ 1,000	
Off-peak Excess		1,000 ~ 2,000
Fuel Cells	500 ~ 1,000	500 ~ 1,000
Repowering		500 ~ 1,000
<u>Out-of-Basin:</u>		
Hydropower		500 ~ 1,500
Off-peak Excess		3,000 ~ 4,000
Geothermal	500 ~ 1,000	500 ~ 1,000
Thermally Enhanced		
Oil Recovery	1,000 ~ 2,000	1,000 ~ 2,000

As can be seen, this supply matrix does not burden neighboring areas with any new fossil fuel or nuclear power plants. Therefore, the air basin will not achieve clean air by exporting pollution. A significant portion of the needed power supply would come from in-basin sources. Yet, the only new installations required in the basin would be solar power plants, a renewable, non-polluting energy source. The above supply matrix, although preliminary, provides a sketch of the basin's energy future from an air quality prospective. It should also be noted that the bulk of the power required is to charge electric vehicles, which can be accomplished either during the day or at night, depending on the availability of energy resources. For instance, if more solar power plants are constructed than expected, proportional electric vehicle battery charging can be shifted to daytime. Therefore, the

CONTROL MEASURES

daytime/nighttime demand and supply curves will continue to be revised to reflect the most efficient and economical way of consuming energy.

SCAQMD recognizes that energy demand and supply forecast is a complicated issue. Therefore, the analysis to this date is by no means final, but rather the beginning of a long term planning process. SCAQMD will continue to work with the CEC, PUC, utilities and other interested groups to analyze energy demand and supply further and to address other issues such as energy supply system, transmission capacity, out-of-state energy supply, energy conservation programs, etc.. Such meetings are presently being arranged and a task force will be formed shortly after the plan adoption to lay out a more detailed work plan to address critical energy issues.

Appendix IV-B of the AQMP was prepared before the plan's air quality modeling results and control measures were available. Therefore, it provided three generic scenarios to serve various purposes. The energy forecast was estimated in the absence of other control measures in the AQMP, such as SCAG's energy conservation measures and VMT controls. The appendix will be updated to reflect the preceding discussion and released in early 1989 following AQMP adoption.

With respect to electrotechnology, the District acknowledges that applications of many types of industrial electrotechnology currently used to replacement fuel combustion are limited. The potential for expansion of such applications to a larger scale or to other source categories is uncertain, but not impossible. Therefore, electrotechnology is considered mostly a Tier II or Tier III control where technologies require further development, as opposed to a Tier I control, which represents currently available technology.

In dealing with electrification strategy, the District has taken the first step to analyze potential electricity demand and supply, according to the extent of electrification specified by the AQMP. This is the purpose of Appendix IV-B. If the power supply appears to be available to meet AQMP-based demand, the next step is to analyze process-specific electrotechnology. The AQMP has identified a long term study plan for electrotechnology

CONTROL MEASURES

development. This is to ensure that prior to rule adoption, electrotechnology must pass the same technical, energy-efficiency, and cost-effectiveness tests as other SCAQMD adopted control measures.

The inclusion of the electrification strategy in the AQMP is important to provide the District as well as industry with long term research and development guidelines. However, this approach should not be interpreted as excluding other low-emitting technologies, such as advanced natural gas technologies. Technologies which can achieve the same emission reduction goals as electrification will be considered by SCAQMD. Viable technologies identified in the future will be incorporated into the subsequent AQMP revisions. SCAQMD appreciates SoCal Gas Company's information on the status and research effort for advanced natural gas technologies. It will be further reviewed and compared with current gas combustion technology and potential electrotechnology. SCAQMD urges the industry to continue developing non-polluting technology to achieve the clean air goals we all share.

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CONTROL MEASURES

Comment: **Plan Implementation**

The three-tiered approach to control measures should be phased in and implemented only after each implementing agency holds public hearing and/or workshops on each control strategy.

Commentor: **Coachella Valley Association of Governments**
Coachella Valley Water District

Response: The control measures contained in the draft plan will serve as the framework for future research and rule development efforts by implementing agencies. Therefore, every control measure will be further evaluated and undergo appropriate rule-making process before final adoption and implementation.

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CONTROL MEASURES

Comment: **Plan Implementation**

The existing air quality in any part of the District, including Coachella Valley, should not be degraded in order to improve air quality in other parts of the District.

Commentor: **Coachella Valley Association of Governments**
Coachella Valley Water District

Response: This has been one of the criteria the SCAQMD used to design the Path to Clean Air. Air quality in all regions inside or adjacent to the air basin will improve as the result of implementation of the AQMP.

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CONTROL MEASURES

Comment: Plan Implementation

Are the control measures in the draft plan feasible, particularly with regard to achievement of the standards for ozone? Lack of implementation authority (depending upon other government agencies), cost, and technological feasibility are important impediments to the feasibility of the control measures.

Commentor: California Council for Environmental and Economic Balance (TR 10/27/88)

Response: As indicated in the draft plan, all the Tier I control measures are technologically feasible, although it requires the political will and public commitment to adopt and implement Tier I controls. Funding resources need to be identified for Tier I transportation system construction. However, this must take place to resolve the regional mobility problems even in the absence of air quality issues. Therefore, Tier I control measures, in general, are highly feasible, if Southern California is to maintain a livable environment.

Tier II and Tier III controls depend on future technology development. It is our best judgement that if we start research and development projects today, it is possible to have Tier II and Tier III technologies available for implementation in a timely manner. However, should any of the technology fail to be available, substitutes must be found to make up the emission reductions required to achieve clean air. Therefore, the draft plan will be periodically revised or updated to incorporate the most technically and economically viable control measures.

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COST/BENEFIT ANALYSIS

Comment: Control Costs

The assumption that methanol will be available at 35 to 40 cents per physical gallon delivered to Los Angeles is unrealistically low. The cost estimate for the proposed use of methanol in stationary sources appears to entirely omit a significant category of costs--those for fuel storage.

Commentor: California Council for Environmental and Economic Balance (8-12-88)

Response: The price range of a gallon of methanol has been revised as 35-80 cents. The cost of phasing out fuel oil has included \$42 million for fuel storage and other one-time costs of conversion.

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Comment: Control Costs

The cost side of the equation does not reflect intrinsic economic losses to industry or the job market.

Commentor: City of Garden Grove (10-13-88)

Response: Only the direct control costs resulting from implementation of control measures are included in the cost estimation. The job and production gains from investments for control equipment to air pollution control industries are also not counted.

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COST/BENEFIT ANALYSIS

Comment: **Control Costs**

Where does the annual cost of \$3.388 billion for all stationary controls come from?

Commentor: **City of Corona (8-8-88)**

Response: This roughly equals \$9.4 million per day, as published in the Policy Proposal to the AQMP. This cost included Tier I control measures with cost data only. It was calculated by multiplying dollars per ton of emissions reduced by the net emission reduction for each control measure.

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Comment: **Control Costs**

The economic analysis in Appendix IV-B fails to take into account the massive capital investments required for the user to have the energy available and ignores the question of the ability of the existing utilities to finance such expansion. A direct correlation exists between the miles of new transmission line that will be required and the dedication of land for that use. It is unclear if the unit prices used accounts for the capital recovery costs associated with such significant short term capital investment.

Commentor: **Southern California Edison (10-27-88)**

Response: The District's latest analysis indicates that the AQMP does, in itself, require construction of new power plants to provide additional capacity. Furthermore, the CPUC allows utilities to recover the cost of complying with environmental regulations, subject to a demonstration by the utility that its choice of compliance methods was prudent.

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COST/BENEFIT ANALYSIS

Comment: **Control Costs**

What are the assumptions for the cost analysis? What is included in the cost analysis of Improved Control from Fluid Catalytic Cracking (FCC) Particulate Matter (PM).

Commentor: **ARCO (10-26-88)**

Response: Appendix IV-D discusses methodology and assumptions used to perform cost analysis. Purchasing and installation costs of electrostatic precipitators and their operating costs, mainly electricity and maintenance, are included in the cost analysis of control of PM emissions from FCCs.

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COST/BENEFIT ANALYSIS

Comment: Control Costs

Solar Panels on water heaters can be installed for a price of \$1,800 on new tract homes, contribute to 80% of energy requirements for water-heating, and last for 30 years. Therefore, a homeowner would save rather than lose money for the reduction of NO_x.

Commentor: California Solar Energy Industry Assoc. (10-10-88)

Response: Solar panels for domestic water heating are not cost-effective for existing homes because their installation cost amounts to \$4,000. Furthermore, low energy requirements for natural gas water heaters, the low price of natural gas, and low NO_x emissions of natural gas water heaters make solar panels less attractive for existing homes.

However, installation of solar panels for water heating in new homes can incur savings if owners of these homes choose to recover a portion of the initial capital outlay through home resales.

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Comment: Control Costs

In order to establish business plans for the next 4-5 years, compliance costs per ton of a given pollutant and alternatives which can be selected would be more useful than stating the cost of the AQMP.

Commentor: Industrial Environmental Coalition of Orange County (TR10-27-88)

Response: Compliance costs per ton of a given pollutant can be deduced from Table I-1A and emission reductions of each control measure in Appendix IV-A for control measures with cost data. Technologies which can achieve equivalent emission reductions other than those specified in control measures are considered as alternatives in the rulemaking process.

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COST/BENEFIT ANALYSIS

Comment: **Control Costs**

Solar energy should replace fuel combustion for commercial/industrial process heating and for electricity generation.

Commentor: **Harvey Eder (TR10-27-88 and TR10-22-88)**

Response: Solar energy is a viable technology for a number of commercial and industrial applications. The SCAQMD encourages users of fuel combustion to consider solar as an option. Cost effectiveness is the main concern in promoting solar energy as a power source.

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Comment: **Control Costs**

Costs should include indirect social costs.

Commentor: **Economic Development Corporation of Los Angeles County (EDCLAC) (TR10-24-88)**

Response: Indirect costs and benefits will be discussed further in the FEIR.

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COST/BENEFIT ANALYSIS

Comment: **Control Costs**

The Southern California Gas Company (SoCalGas) estimates a much higher economic impact: Tiers I and II alone look to us to be in the order of about \$2.5 billion dollars per year by the year 2007, which translates into \$3.90 per person per year, as compared to the 65 cents.

Commentor: **Southern California Gas Co. (TR 10-24-88)**

Response: No documentation was provided to substantiate this assertion.

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COST/BENEFIT ANALYSIS

Comment: Control Costs

The methodologies for evaluation of measures, impacts, benefits and disbenefits need to be adequately documented and presented. A breakdown of a \$2 per day benefit is not provided nor does it explain how this figure was derived.

Commentor: Coalition for Clean Air (10-27-88)
ARCO (10-26-88 and TR10-27-88)
City of Garden Grove (10-13-88)
WOGA (10-27-88)
CCEEB (10-27-88)
Group Against Smog and Pollution (10-27-88)

Response: The discounted cash flow method (ACF) is used to evaluate cost effectiveness of each control measure. See Appendix IV-D for detailed information. Control costs by the two-digit Standard Industry Code (SIC) industries were derived by distributing the cost of each control measure among directly affected two-digit SIC industries based on their 1985 emissions.

The air quality benefit was derived by comparing the 1987 air quality data in the Basin to the federal standards for ozone and particulates. The air quality benefit resulting from CO reductions is not accounted for. The benefit included that to health, materials, forest, and agriculture. Dose-response equations from the 1986 ARB report, *The Benefits of Air Pollution Control in California*, were used.

The District has contracted for a full economic analysis of the benefits of air pollution control. Once these data become available and have been properly reviewed, they will be used to develop an AQMP revision. This should occur in 1990 as part of the required two year review of the AQMP.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

EMISSION CHARGES STRATEGY

Comment: Emission Charges

Export fees on products exported across SCAB boundaries unfairly penalizes businesses which may be serving the needs of Californians in adjacent areas. The export fee proposal means that Chevron's El Segundo refinery could be taxed out of its current business as a supplier of fuels for the rest of California. The end result would probably be reliance on imported fuels or, possibly, construction of new refineries elsewhere in California.

Commentor: Chevron USA, Inc. (9-28-88)
Western Oil and Gas (10-27-88)
Mobil Oil Co. (10-27-88)

Response: Businesses which pollute air need to internalize the damage cost of polluted air in their production processes. The purpose of the export fee is to discourage refining activities for out-of-Basin sales. The impact will depend on the difference in the magnitude of the export fee and the cost of refining crude oil in other basins.

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Comment: Emission Charges

Any plans to assess fees should indicate how the fee schedule is derived, how the money is to be assessed, collected and disbursed equitably, and the types of projects that would be funded.

Commentor: UNOCAL (6-18-87)

Response: There are three contingency measures on emission charges in the addendum to Appendix IV-A, each of which indicates where the emission charge is imposed and how the money will be utilized.

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EMISSION CHARGES STRATEGY

Comment: Emission Charges

The SCAQMD should consider the use of user fees in its policy statement, not only to correct our air pollution, but to correct many other abusive consequences of automobile-dependency. An example would be a tax or a fossil fuel mobility charge of 5 cents a gallon on gasoline for the next 20 years to finance transportation management systems and to encourage use of clean fuel.

Commentor: Sierra Club-Angeles Chapter (8-8-88)
Scott Anderson (TR10-27-88)

Response: There are three contingency uses of emission charges in the addendum to Appendix IV-A--emission charges on gasoline and diesel, parking lots, vehicle usage--for mitigating the dependency on vehicles.

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Comment: Emission Charges

Emission charges can be used to harass and drive out those who do not jump through the air quality hoop.

Commentor: City of Corona (8-8-88)

Response: Emission charges are used to encourage subject sources to develop innovative controls to avoid paying charges.

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EMISSION CHARGES STRATEGY

Comment: **Emission Charges**

(a) **Emission Charges on Gasoline and Diesel:** Provide a cutoff year for setting the annual vehicle registration fee proportional to mileage driven during the previous year and the emission characteristics of the vehicle. (b) **Emission Charges on Parking Lots:** Ban/restrict parking or creation of additional parking spaces in congested areas. Levy a tax on the owners of all nonresidential parking spaces. The revenue of emission charges should be used for mass transit. (c) **Emission Charges on Vehicle Use:** Create a subsidy/penalty system for electric/solar versus non-electric/solar vehicles.

Commentor: **Sierra Club (10-27-88)**

Response: These emission charges are in the contingency plan and will be further developed to meet the clean air goals through continuing discussions with industries. The District needs legislative authority to implement these measures.

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EMISSION CHARGES STRATEGY

Comment: Emission Charges

An industry which has been controlled to the maximum extent technologically feasible should not be subject to emission charges. The proposal of an emission charge to reduce construction dust is a good example to demonstrate the effective use of this concept. WOGA believes, however, emission charges imposed on sources that are already subject to and complying with stringent control levels would not be equitable. A prototype rule for emission charges should come across as a mild alternative to harsh rules rather than as a harsh alternative to mild rules.

There is no discussion in Tier II of how the fee levels will be initially established nor is there any assurance that the fees will reflect actual control costs for demonstrated technologies rather than targeted (unavailable) technologies.

**Commentor: Western Oil and Gas (10-27-88)
Group Against Smog and Pollution (TR10-27-88)**

Response: One of the areas that emission charges may be applied to is the sources which are difficult to control, such as construction dust. However, emission charges can assist in development of new technology. One example is the use of emission charges to provide automakers an incentive to exceed the Corporate Average Fuel Economy (CAFE) standards for improving fuel efficiency and air quality. Unlike command-and-control rules, emission charges are used as incentives for further emission reductions. To the extent emission charges offer more options to subject sources, they are more flexible than command-and-control rules.

The District would continue its dialogue with industries on the level of emission charges.

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COST/BENEFIT ANALYSIS

Comment: Emission Charges

Control measure of emission charges for architectural coatings needs to drop the adjustment factors. Emission charges should not be confined to situations where control technology is unavailable. The District should prepare a generic emission charge rule applicable in principle to all sources.

Commentor: Coalition for Clean Air (10-27-88)

Response: This control measure is only a concept at this stage. The issues raised here will be considered in developing a final District position on emission charges.

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EMISSION CHARGES STRATEGY

Comment: Emission Charges

The ARB does not find in the State Health and Safety Code any provision granting to the District authority to levy emissions charges on users of architectural coatings. The District will need to secure through legislation the necessary legal authority to implement an emissions charge program. Coatings technology development could be accelerated by crafting the fee system so that low-VOC coatings have much lower shelf prices than do high-VOC coatings.

Commentor: ARB (10-18-88)

Response: The District currently does not have the authority to implement emission charges and will be seeking the authority to do so. The purpose of levying emission charges on architectural coatings is to encourage their users to purchase low-VOC coatings. Therefore, prices on low-VOC coatings must be lower than prices on high-VOC coatings with emission charges.

**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

COST/BENEFIT ANALYSIS

Comment: Control Costs

Insufficient cost analysis has been prepared for the AQMP control measures. The SCAQMD should explore in detail, both internally and with industry, (a) a combination of technologies and their ensuing costs to meet the desired requirements in each control measure, and (b) which industries are affected. No cost estimates are provided for electrifying the entire transportation system. The full cost of implementing the AQMP will be several times of the partial estimate of \$3 billion per year in the draft AQMP.

Commentor: **Southern California Air Quality Alliance of the California
Manufacturers Association (8-15-88)
Los Angeles Chamber of Commerce (9-28-88 and TR10-24-88)
Southern Calif. Gas Co. (8-16-88)
UNOCAL (6-18-87)
County of Los Angeles, Chief Administrative Office (8-12-88)
CCEEB (10-27-88)
City of Pomona (11-2-88)
Board of Supervisors, County of Los Angeles (10-21-88)
Chief Administrative Officer, County of Los Angeles (10-26-88)
City of Santa Ana (10-27-88)
Department of Community Development, City of Claremont (10-
27-88)
Public Utilities Commission (11-8-88)
Southern California Gas Co. (TR10-24-88)
ARCO (10-26-88)
Coalition against the Pipeline (10-22-88)
Economic Development Corporation of Los Angeles County
(EDCLAC) (TR 10-24-88)
City of Fullerton (TR10-27-88)**

Response: To the extent possible, cost effectiveness of control measures for known technological applications has been developed in Appendix IV-A. Since Tiers II and III measures are not to be adopted until the mid to late 1990s, future AQMP revisions will further quantify these costs. There is a reason to believe that many of the Tier II and III measures may actually save money, depending upon the price of oil in the future and the development of low-cost and low-VOC surface coatings.

The SCAQMD staff has talked to vendors of control equipment and subject industries of control measures to secure cost information. Whenever a combination of technologies was required for a control measure, costs from all technologies were considered in the analysis. In the FEIR, industries affected by control measures will be identified.

The estimated cost for transit and highway infrastructure investments is \$57 billion for the next twenty years. The entire cost of implementing the AQMP may be more than the cost estimates that the SCAQMD has provided so far. It is also likely that many Tiers II and III measures may actually save money and thus reduce the cost impact of the AQMP. The \$3 billion figure per year was for control measures with cost data only.

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Comment: Control Costs

The City of Vernon is concerned that emission controls for numerous industries could prove expensive.

Commentor: City of Vernon (8-30-88)

Response: Emission controls can be expensive. Breakthroughs in technology may ultimately lower compliance costs. In any case, each control measure is reviewed and specific cost data are developed during the rulemaking process.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

EXTENSION OF TIME

Comment: Given the technical complexity of the draft AQMP, the haste with which it was prepared, and the major public policy implications of the suggested control measures, more time is needed to review and build consensus for the plan's provisions prior to adoption and transmittal of the 1988 AQMP to ARB and EPA. Timeframes range from 30 days to one year, with most commentors requesting a 90-day delay.

A time extension also is justified because of the lack of participation by local governments in plan development and because of the inavailability of certain appendices until early October.

The final reason for delaying plan adoption is the lack of information regarding the social and economic impacts of the plan as proposed.

Commentors: **AUG-RELATE TO POLICY PROPOSALS**
City of Fullerton, Development SVC Dept (8/9/88)
City of La Habra (8/9/88)
City of Costa Mesa (8/10/88)
City of Los Angeles, Dept of Public Works (8/11/88)
Air Transport Assoc. of America (8/12/88)
City of Santa Ana (8/12/88)
City of Placentia
City of Long Beach
City of Los Angeles, Chief Admin. Ofc.
City of Fullerton, Devel. SVC Dept. (8/15/88)
Greater Los Angeles Chamber of Commerce (8/15/88)
So. Cal AQ Alliance, CA Mfr. Assoc. (8/15/88)

SEPTEMBER

City of Buena Park (9/6/88)
County of Orange (9/7/88)
City of Los Alamitos (9/16/88)
City of Fullerton (9/28/88)

OCTOBER

City of Fullerton, Devel. SVC Dept. (10/12/88)
Chevron USA, Inc. (10/12/88)
City of Garden Grove (10/13/88)
City of Westminster (10/13/88)
Greater Van Nuys Chamber of Commerce (10/17/88)
City of Fountain Valley (10/17/88)
City of Stanton (10/17/88)
City of San Juan Capistrano (10/17/88)
City of Irvine (10/18/88)
City of Placentia (10/19/88)
City of Cypress (10/20/88)City of La Mirada (10/20/88)
City of Anaheim (10/20/88)
Plng. Directors Assn. of Orange Co. (10/24/88)
SoCalGas (10/24/88)
Los Angeles Area Chamber of Commerce (10/24/88)
CCEEB (10/25/88)
City of Buena Park (10/26/88)
McDonnell Douglas (10/26/88)
City of Orange (10/27/88)
City of Culver City (10/27/88)
City of Santa Ana (10/27/88)
League of CA Cities-Orange Co Division (10/27/88)
California Manufacturers Assn.(SoCA AQ Alliance) 10/27/88)
County of Orange (10/27/88)
Councilman Henry Wedaa, SCAQMD Board (10/27/88)
City of Santa Ana (10/27/88)
City of La Habra (10/27/88)
City of Tustin (10/27/88)
BIA of So. CA (10/27/88)
City of Irvine (10/27/88)
City of Costa Mesa (10/27/88)
CA League of Cities, Orange Co. Division (10/27/88)

City of Newport Beach (10/27/88)
City of Garden Grove (10/27/88)
City of Fullerton (10/27/88)
City of Anaheim (10/27/88)
LA County Federation of Labor, AFL-CIO 10/28/88)

NOVEMBER

City of Paramount (11/3/88)
City of Brea (11/8/88)

RESPONSE: As noted in Chapter 1 (pp. 1-8) of the draft AQMP, AQMD staff have been working on plan components for six years, when work began on a comprehensive update of the basinwide emissions inventory. In 1985 the formal AQMP revision process commenced with the publication of the Long Range Strategy Paper, which refined long range control measures contained in the 1982 AQMP. In addition to stationary source control strategies which foreshadowed recently adopted controls on solvent and coating use, the Long Range Strategy Paper addressed such issues as land use planning, transportation control measures, indirect source control, telecommunications, emissions charges, and clean fuels, all of which are included in the draft plan.

As a followup to that document, AQMD released a companion Short Range Control Measures (Working Paper #4) in late 1986. This paper identified those specific control measures, including transportation control measures and economic incentives, which could be implemented within the next five years. The Early Action Plans of 1987 and 1988 were based on Working Paper #4.

Although the AQMP revision was scheduled to be completed by September 1987, the state-of-the-art photochemical model for the air basin was not yet available. However, progress was sufficiently encouraging that plan adoption was postponed. In December 1987, AQMD and SCAG jointly published Path to Clean Air: Attainment Strategies to begin public discussion about the measures needed to ensure attainment of air quality standards within 20 years. Between January and June 1988, AQMD and SCAG staff held over 70 meetings throughout the region to discuss the Path to Clean Air. Both agencies also sought input through their existing advisory bodies and through ad hoc task groups, such as the AQMD's Model Review Advisory Committee and SCAG's AQMP Working Group.

In late June 1988, a preliminary plan "Path to Clean Air: Policy Proposals" was released. This document provided greater detail on the proposed control measures and, for the first time, presented the results of the photochemical model (Urban Airshed Model) analysis, along with technical documentation. Staff of both agencies conducted over 100 additional briefings to local government, state and federal elected officials, business and industry, the environmental community and the public in general.

As a result of input received in response to the Policy Proposals, staff released the draft AQMP and EIR in early September. Six public hearings were scheduled throughout the region to seek public response before the proposed adoption date of November 4. That date was moved to December 16 to allow additional time for public comments.

Thus, the information contained in the draft AQMP will have been available in detail for six months and in concept for a full year prior to the proposed December 16 adoption date. It should be noted that both the Growth Management Plan and the Regional Mobility Plan, which constitute a major portion of the draft plan, have undergone similar development, review and revision processes.

The draft Air Quality Management Plan represents this region's commitment to meeting state and federal air quality requirements in a timeframe that makes sense for our climate and economy. The AQMP also is an important factor in the federal court's consideration of the ongoing lawsuit and EPA's requirement to prepare a Federal Implementation Plan (FIP) for the air basin. EPA most likely will be required to promulgate its FIP by March or April of 1989. Postponing adoption of the AQMP for three months prevents our efforts from being considered as part of the FIP development and gives the impression that the region is not serious about moving forward aggressively.

Apart from the need to position the region in the most positive light in relation to the EPA and court decisions, the AQMP represents the AQMD and SCAG clean air commitment to the people of this region. For each argument from local government representatives that more time is needed for review and consensus-building, there were strong statements by the public that the plan be adopted now and implemented aggressively. Delaying plan adoption may well erode the momentum that has developed in the region for taking the kinds of tough actions called for in the plan.

Most of the comments received to date indicate that the draft AQMP is basically a technically sound document, given the information available today. The major issues being raised with respect to delay of plan adoption have to do with long-term policy or technical questions, which need not be resolved completely before the region moves forward. Further, adoption of the plan now does not preclude changes in the future as information becomes available. In fact, the plan will be revised four to five times before 2007 in response to federal and state planning requirements.

RESPONSE TO COMMENTS ON THE

DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Conflicting Authority

The AQMP conflicts with many pre-existing city government plans for growth management, parking, land use and transportation and appears to call for local government to implement measures beyond its scope of authority.

Current contractual obligations between city or county governments and employee organizations may be jeopardized by AQMP control measures which require that local government employees adopt non-negotiated work schedules.

In addition, some AQMP proposals are contrary to state and federal policies. In 1987, for example, state legislation explicitly precluded the District from using its authority to infringe on local land use powers; yet, the AQMP proposes control measures which would challenge this legislation. The EPA sets emission control standards for aircraft which are implemented by the Federal Aviation Agency through aircraft certification and operating regulations. Federal agencies preempt any and all state and local attempts to regulate aircraft emissions, yet the AQMP clearly calls for aircraft emission control measures.

From a legal standpoint, the plan appears to require local governments to implement measures that may be beyond their call of duty. Does the District have a clear legal right to impose its authority in these instances? When AQMP goals are in conflict with local, state, or federal government policies or legislation, which authority prevails?

Commentors: City of Irvine (10/27/88)

Minority Coalition for Responsible Growth (10/28/88)
City of Santa Ana (10/27/88)
City of Costa Mesa (9/7/88)
Economic Development Corporation of Los Angeles (10/24/88)
City of West Hollywood (10/27/88)
Orange County Board of Supervisors and County Administrative Office (10/27/88)
Air Transport Association of America (8/12/88)
City of Tustin Planning Commissioner (11/1/88)
City of Long Beach (10/22/88)
City of LaVerne (8/19/88)
City of Orange (10/26/88)

Response: The AQMP offers proposals for the attainment of federal air quality standards. These proposals are not cast in stone but form a living document that will be revised periodically to accommodate the changing circumstances of the region.

It is not the intent of the AQMP to challenge or usurp the authority of government at any level. A number of AQMP proposals request that local governments act as agents of change to bring about the improvements in air quality needed in the South Coast Air Basin to achieve federal standards. Many of these measures, included in the 1979 and 1982 plans and supported at that time by local government, were developed with the intent that local jurisdictions enter into a partnership with the District. Transportation/circulation, land use, and energy conservation are not only the authority but the responsibility of local government; SB 151 (Presley) and AB 2595 (Sher) specifically authorize the District to control transportation and indirect sources. By adopting local ordinances in support of transportation, land use and energy conservation, local governments can make a significant contribution to the attainment of air quality goals. Indeed, land use and transportation are not only the authority but the responsibility of local government. In essence, AQMP proposals serve to guide local governments and to enable them to set examples for their constituents regarding sound air quality management practices. The District encourages an ongoing dialog with elected officials to help overcome any existing impediments to implementation.

The AQMP identifies what needs to be done by whom to provide a realistic picture of the region's cleanup needs. The South Coast Air Basin cannot achieve clean air unless other levels of government take action. Regarding the authority of the District over state and federal government activities, the District continues to look to government at these levels for ongoing support of the control measures outlined in the AQMP. Although federal and state Clean Air Acts mandate that the District attain their respective clean air standards, both levels of government are directly responsible for the control of emissions from a number of other sources beyond the authority of the District (e.g., automobiles, interstate trucking, aircraft, ships). These sources contribute significantly to air quality problems experienced in the South Coast Air Basin. The AQMP asks that state and local government control those sources for which they have statutory authority.

With respect to collective bargaining agreements, rideahre programs are imposed by the District on local government as an employer, not on employee per se. Clearly, issues including flexible work hours, alternate work weeks and others are subject to bargaining, but local government, like private sector employers, are expected to seek such programs.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: **Government Leadership**

All levels of government -- federal, state, county, and city -- should take the lead in the implementation of air quality control measures and rules at their own operating facilities to set an example for business, industry, and the public. Staggering of work schedules, recycling and the use of clean fuel fleet vehicles are examples of the many programs that could be readily implemented by government.

Commentors: **League of Women Voters, Southern California Regional Task Force (10/26/88)**
 Fred Harris (10/26/88)
 City of Duarte (10/27/88)

Response: The District looks forward to developing an ongoing partnership with government at all levels to bring about attainment of air quality standards. Governments which act proactively to implement control measures should be commended for setting a positive example.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Implementation Authority

Some control measures slated for adoption by local government (12A/Storage and Movement of Fine Particulate Matter, 12B/Unpaved Roads and Parking Lots) would be implemented more effectively by the District.

Commentor: Ira Reiner, Los Angeles District Attorney (10/27/88)

Response: Because the AQMP control measures indicated above have local impacts, the authority for their implementation has been given to local government. The District encourages local governments to devise their own strategies, such as the adoption of local ordinances, to implement these control measures. Should local governments need assistance in devising such ordinances, the District is willing to provide help as necessary. Should the implementation of these control measures fail to achieve the desired air quality results, the District may negotiate with local governments to assume responsibility for their implementation.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Interagency Coordination

Interagency coordination needs to be structured as an integral component of the AQMP. As control measures are developed and implemented, local agencies should be solicited for their input. Local governments, industry, developers, environmentalists, transportation agency representatives should be convened promptly to achieve a consensus on strategies for implementation of control measures.

Commentors: Sandra Kersley (10/27/88)

City of South Gate (nd)

Ira Reiner, Los Angeles District Attorney (10/27/88)

Response: Interagency coordination is an essential element in the successful implementation of AQMP control measures. Rather than including a formal mandate to structure interagency coordination into the AQMP, the District encourages all interested and affected agencies to work together as partners to achieve air quality goals. The AQMP process and, hence, the need for ongoing interagency cooperation, does not end with the formal adoption of the plan but will continue throughout the timeframe identified for attainment.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Local Government Initiatives

Special forums could be established to discuss control measures and their implications for local governments and is available to provide technical assistance as needed. The District could contract with local governments to implement specific measures, or could ask local governments to turn in draft plans of their own or to begin the local legislative process to implement measures.

Commentor: Sierra Club Angeles Chapter (10/24/88)
City of Irvine (10/27/88)
City of Santa Ana (10/27/88)

Response: The District supports the establishment of special forums to discuss control measures and implementation strategies for local governments. The AQMP proposes the adoption of local ordinances to achieve air quality goals associated with local control measures. The development of draft plans by local governments for review by the District represents an aggressive, proactive approach to AQMP implementation. The success of these methods will likely preclude the need for local governments to contract with the District to implement specific control measures.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Implementation Assumptions

How were implementation assumptions derived? The AQMP must be more specific about strategies for implementation by local governments and how they will be funded. The impacts of control measures are unclear and standards for implementation and attainment are confusing. Proposed local control measures need further elaboration so that cities and counties are able to respond more completely.

Commentors: City of Irvine (10/27/88)
Minority Coalition for Responsible Growth (10/22/88)
City of Buena Park (10/26/88)
City of Santa Ana (10/27/88)
City of LaVerne (8/19/88)
City of Culver City (10/22/88)
City of Ontario (10/17/88)
City of Orange (10/26/88)
City of Long Beach (10/22/88)

Response: Implementation assumptions reflect the philosophy that control measures which affect specific jurisdictions are more effectively implemented by those jurisdictions. This is particularly the case for control measures slated for adoption by local governments. The impact of each of these control measures is quantifiable in terms of specific emission reductions which, in turn, are expected to have a positive effect on human health and welfare. Standards for implementation and attainment include the adoption of local ordinances which may be tailored to meet the specific needs and characteristics of each local jurisdiction.

Each control measure outlines a set of specific actions in three phases with specific dates for local government to follow. These include administrative actions for government employees in addition to ordinance adoption by local governments. Where clarification is necessary, the District and SCAG stand ready to provide guidance, and invite local governments to collaborate on

the elaboration of implementation strategies to achieve air quality standards.

Regarding implementation costs and funding, please refer to the Cost/Benefit Analysis section in Chapter VII, Appendix IV-G. A Cost/Benefit Impacts Study will be released by SCAG prior to final adoption of the AQMP. Sources of transportation funding are identified in the Regional Mobility Plan.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Flexibility in Implementation of Control Measures

Flexibility must be maintained in the local implementation of control measures as long as the goal of meeting federal air quality standards (NAAQS) is met; what works in one area may not be as effective as in another area. An optimum mix of mitigation measures should be adopted for each jurisdiction. Local governments must be able to choose from various proposals at the outset in order to allow for the unique circumstances of the community. A broader menu of options for consideration by local government is needed.

Commentors: Coachella Valley Association of Governments (10/25/88)
The Irvine Company (10/27/88)
City of West Hollywood (10/27/88)
City of Long Beach (10/22/88)
City of Newport Beach (10/18/88)

Response: Because of a lack of widespread complicity with the voluntary measures in the 1982 AQMP Revision, the intent of the 1988 Revision is to mandate these measures, as far as it is possible. Cities will choose as many of the control methods as are appropriate for implementation in their area.

Guidelines for implementation of AQMP measures at the local level do not dictate the specific content of local ordinances. Sample ordinances can be made available to local jurisdictions which require such assistance and input, but the District encourages each municipality to develop its own framework to better reflect the character and changing needs of its constituency as well as the particular physical conditions of the area in which it is located. The District is willing to work with local governments to identify additional options for the implementation of control measures, as well as other control measures which may supplement efforts at air quality attainment.

IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Implementation Priorities and Feasibility

There is little or no information available on the orderly implementation of AQMP measures at the local and regional level. Implementation of the AQMP will require a great deal of cooperation among cities and counties. There must be priorities established for AQMP implementation based on the feasibility of local and regional control measures. A mechanism must be developed for regional ranking and allocation of resources to attain air quality goals. How will or can cooperation be achieved to meet attainment goals? Would a regional authority improve cooperation among local governments in plan implementation at the local level? What, if any, institutional structure is proposed to implement the measures included in the plan? Will a regional intercounty joint powers board or a state-legislated coordinating agency be required to make the plan work?

Commentors: Sierra Club, San Geronimo Chapter (10/26/88)
Minority Coalition for Responsible Growth (10/22/88)
City of Santa Ana (8/12/88)
City of Santa Ana (10/27/88)
Greg Bullmer (10/26/88)
League of Women Voters, Southern California Regional Task Force (10/26/88)
Fred Harris (10/26/88)
Ryan Snyder (10/22/88)
City of Anaheim (10/20/88)
Chevron USA, Inc. (10/26/88, 10/27/88)

Response: The District and SCAG have identified target dates for adoption of local ordinances by city governments. Strategies for prioritizing and ordering the implementation of these ordinances are left to local governments to develop as a function of their particular needs, circumstances, and readiness to take action.

The District is prepared to work directly with local governments to achieve AQMP implementation goals. Additional impetus for cooperative efforts will come from other sources, including the

possible imposition by the court of a Federal Implementation Plan, potential sanctions by the EPA, public pressure for improved air quality, financial benefits for tourism, and reduced health care costs, among others.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Local Government Support

Successful implementation and enforcement of the AQMP requires endorsement by all public officials (Governor, President Pro-Tem of the Senate, Speaker of the Assembly, County Supervisors, Mayors, City Council Members, etc.). Yet, some of the most vocal opposition to the plan has been expressed by local elected officials who perceive that AQMP control measures reflect a "top down" approach to regional planning which minimizes their influence over the development of critical policy and implementation issues. Many elected officials feel that SCAG and the District are indifferent to local issues, reflected in the perceived lack of involvement of city government officials in the AQMP planning process. Without local government commitment, the plan will not succeed; for SCAG and the District to be successful, multijurisdictional consensus and the spirit of compromise must take precedence over unilateral regulation. Nonetheless, many elected officials fear that if local government fails to implement sections of the plan, the District will, thus abrogating the control and responsibility of local government.

Given these perceptions on the part of local government, what are the political implications of AQMP implementation? Can SCAG and the District enlist the support of all the local governments in the South Coast Air Basin? Implementation of at least some local control measures will be difficult politically due to the heavy new financial or coercive burdens which may be imposed. Will local leaders have the political will to raise revenues to underwrite the costs of local implementation? There will be serious political implications at all levels as the plan is implemented. The AQMP must recognize the need for stronger political realism. What efforts will the AQMP make to facilitate more local government and regional body participation in the AQMP process?

Commentors: **Blue Diamond Materials (10/11/88)**
 Orange County Division of the League of California Cities
 (10/27/88)
 Orange County Board of Supervisors and County Administrative
 Office (10/27/88)
 City of Costa Mesa (8/10/88; 9/7/88)
 City of Santa Ana (8/12/88; 10/27/88)
 The Irvine Company (8/29/88; 10/27/88)
 Orange County Hall of Administration (9/7/88)
 Southern California Gas (10/24/88)
 AQMP Working Group (7/27/88)
 Ira Reiner, Los Angeles District Attorney (10/27/88)
 City of Anaheim (8/22/88)
 City of Buena Park (9/6/88)
 Los Angeles Chamber of Commerce (8/15/88)
 City of Seal Beach (9/15/88)
 Greg Bullmer (10/26/88)
 Ryan Snyder (10/22/88)
 Coachella Valley Association of Governments (10/25/88)

Response: There is apparently a perception by local governments that the District has not actively sought their input in the AQMP planning process. During the past several months, however, many opportunities for local participation have been made available through public hearings, public workshops, meetings of city councils and associations of governments, briefings of government staff, and other public forums. Throughout this period, the District has sought and will continue to seek local government input into the planning process. This process does not end with the formal adoption of the AQMP in December, but will continue throughout the time frame identified for the attainment of federal air quality standards. Local elected officials are invited to work closely with the District to achieve air quality goals.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Extraregional Impact of AQMP

The District must look at the impact of AQMP implementation beyond the immediate region of the South Coast Air Basin (i.e., adjacent desert areas of Riverside and San Bernardino Counties). Modeling efforts should be extended beyond the basin to determine the regional impact of pollution. Neighboring Air Pollution Control Districts (APCDs) were apparently not considered in the overall development of the AQMP. Will neighboring APCDs adopt similar plans to insure the attainment of clean air standards in our basin? The AQMP does not discuss the legal authority of a state or region to plan its regional development relative to the availability and use of energy and natural resources on bordering states. What is the nature of this authority, and what impact can it be expected to have on adjacent states?

Commentors: Keep Riverside Ahead (10/26/88)
City of Anaheim (8/22/88)
City of Santa Ana (8/12/88, 10/27/88)
Inland Empire Economic Council (10/27/88)

Response: While this AQMP has been prepared for the South Coast Air Basin, the District intends to address the air quality impacts of control measures on air quality in adjacent areas. There are not adequate windfield and emission data east of Banning, however, that can be used as input for model simulation of transport and ozone formation.

The District Board has committed \$400,000 to a three-year Inland Air Quality Study in the Coachella Valley. Initiated in June, 1987, the study will gather aerometric and emission data to characterize PM₁₀ and visibility. Neighboring regions will be considered in future regional air quality planning.

IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Air Quality Elements

There is a need for regionally consistent, uniform air quality elements in all general plans. If air quality elements are included in general plans through the amendment of state planning laws, they should be required to conform with guidelines adopted by local APCDs. Adoption of amendments to General Plans by July 1, 1990, is unrealistic given the environmental review process required. How shall local governments prepare and implement air quality elements? Can model air quality elements be appended to the AQMP? Has the District reviewed each city's general plan to ensure that air quality, circulation and land use elements are consistent with the AQMP? Will air quality elements become mandatory? If not, what incentives might facilitate their adoption on a regionwide basis?

Commentors: **Sierra Club, San Geronio Chapter (10/26/88)**
 Ira Reiner, Los Angeles District Attorney (10/27/88)
 City of Irvine (10/27/88)
 City of Los Angeles Planning Department (8/29/88)
 City of Los Angeles Planning Commission (5/4/87)
 Building Industry Association of Southern California, Inc.
 (10/27/88)
 City of Santa Ana (10/27/88)

Response: A resolution calling for the incorporation of air quality elements into General Plans has been adopted by the District Board. Appended to the Board resolution is a model air quality element for use at the discretion of local governments. A number of cities have already taken steps in this direction. In fact, the City of Los Angeles, which introduced an air quality element into its General Plan nearly ten years ago, has asked for guidance as to how this element might be tailored to reflect the specific goals of the AQMP. The District would prefer to see local governments include an air quality element in their General Plans on a voluntary basis rather than relying on amendments to state planning laws to accomplish this objective. To this end, workshops may be scheduled to assist local governments develop air quality elements

consistent with their particular concerns, needs, and circumstances and with the control measures outlined in the AQMP. The District has not evaluated the General Plans of local governments throughout the air basin to determine the nature and adequacy of air quality elements, if any, included in their plans, largely because each municipality is confronted with unique configurations of mobility, land and energy use, population, and other determining factors. The District is willing, however, to meet with local jurisdictions to help develop air quality elements that meet the specific needs of local government.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Local Ordinance Adoption

Control measures for local government implementation require ordinance adoption; yet, the controversial nature of the proposed control measures makes uncertain whether local government regulation will achieve significant results. Adoption of local ordinances by July 1, 1990, is unrealistic given the environmental review process required. This deadline may not permit sufficient time for the development of fully adequate measures. Ordinance adoption is a lengthy process, requiring that cities schedule and notice hearings and other activities. The amount of time consumed by this public process is not taken into account by the AQMP.

Local governments need model ordinances as guidelines for drafting their own measures. The District and SCAG should provide funding for and write model ordinances to guide local government efforts.

Commentors: City of Irvine (10/27/88)
County of Los Angeles, Chief Administrative Office (8/12/88)
City of Santa Ana (8/12/88; 10/27/88)

Response: The District has recently drafted a model ordinance requiring a ban on the manufacture, distribution, sale, and use of chlorofluorocarbon-produced polystyrene foam products which deplete the ozone layer and contribute to solid waste management at landfill sites. This model document will be available to local jurisdictions who wish to use it as a tool for developing and tailoring their own local ordinances. Other model ordinances may be made available to city governments to accomplish similar objectives relative to AQMP control measures. The drafting of model ordinances by the District and SCAG will help to reduce the time required for adoption of local ordinances by municipalities within District boundaries.

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IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Local Solutions

A number of control measures were not identified by the AQMP and should be incorporated as attainment strategies for local implementation. The AQMP should require that gravel trucks be covered to reduce the local effects of PM10. These effects could also be curtailed by local regulation of leaf blowers by landscaping companies and individual consumers. The AQMP should also include additional discussion of local recycling in commercial and industrial sectors; the preferential use of recyclable products; the development of integrated waste management through mechanical separation and processing; the development of a materials exchange plan for excess paint and other substances as an alternative to disposal, with a regional clearing house to coordinate the exchange of materials between those who have excess amounts and others who need them; and the development of a community compost program.

Commentor: City of Duarte (10/27/88)

Response: The AQMP does contain the control elements described above. The District applauds the efforts of local government to develop and implement additional control measures on to identify additional implementation options beyond those indicated in the AQMP. Each of the attainment strategies described above will be further developed prior to measures adoption.

IMPLEMENTATION: POLITICAL IMPLICATIONS

Comment: Federal Regulation of Air Quality

The Federal government is unrealistic in its demand that the South Coast Air Basin meet the National Ambient Air Quality Standards (NAAQS) within the deadline identified. The Clean Air Act should be amended to provide more flexible deadlines and a minimum requirement of 3% reduction in emissions per year rather than the attainment of an absolute standard. These amendments should be written to better accommodate the technological and economic realities of attaining and maintaining federal air quality standards, and should allow for reasonable change rather than adherence to absolute standards.

**Commentors: City of Long Beach (10/22/88)
City of Santa Ana (8/12/88)
Orange County Board of Supervisors and County Administrative Office (10/27/88)**

Response: Federal standards for air quality attainment are based on data describing the impact of criteria air pollutants on human health and welfare. These standards protect all people, including sensitive populations, with a margin of safety, and are reviewed every five years.

The South Coast Air Basin is within acceptable limits with respect to two criteria pollutants. Lead emissions from mobile sources have been reduced through reformulation of motor fuels, and emissions of oxides of sulfur (SO_x) have been curtailed through District regulation of stationary sources. Our region continues to exceed federal standards, however, for four other criteria pollutants, including oxides of nitrogen (NO_x), reactive organic gases (ROG), small particulate matter (PM₁₀), and carbon monoxide (CO). Given the severity of the air quality problem in this region, it appears that any changes in legislation may be directed toward tighter emissions controls.

Implementation of AQMP control measures is projected to result in the attainment of federal standards within the 20-year timeframe

identified by the District. AQMP implementation will result in changes in transportation, land use, energy conservation and other practices within our air basin which will promote the more judicious use of existing resources to the end that air quality is significantly improved. Contingency measures have been added to the plan to ensure that the region will be able to meet the proscribed deadline for air quality attainment.

On the level of state government, the California Clean Air Act (AB 2595 - Sher) recently signed into law by the Governor further directs the District to contain air emissions at a rate of 5% per year to achieve state air quality standards. While the California Clean Air Act "allows for reasonable change rather than adherence to absolute standards," the mandate to control air emissions toward the ultimate goal of attaining absolute state standards remains.

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RESPONSE TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

PUBLIC PARTICIPATION/PUBLIC EDUCATION

Comment: The AQMD should increase its efforts to educate the public about each person's individual contribution to air pollution and develop consensus on lifestyle changes that will be needed. This should include the establishment of subregional implementation task forces, reflecting the ethnic and economic makeup of the region, to address such issues as job/housing balance and the socio-economic impacts of the plan. The AQMD also should seek out business, academic and research experts as advisors.

The AQMD's public outreach efforts to date, while ambitious, need to target specific interest groups, such as minority communities, local elected officials and other agencies. The AQMD is to be commended for holding a public hearing in South Central Los Angeles, so that low income and minority communities can participate. An additional hearing should be held in the City of Los Angeles prior to plan adoption.

The AQMD should improve the information presented in the Smog Index and should provide Right-to-Know information and more technical assistance to residents who call because of pollution releases.

Commentors: Councilman Lida Lenney-Laguna Beach (10/27/88)
Sandra Kersley (10/27/88)
Kristy Wise, Students Against Vanishing Envir. (10/27/88)
Carolyn Wood (10/27/88)
Industrial Envir. Coalition of OC (10/27/88)
LWV of So CA Regl. Task Force Riverside (10/26/88)
Sierra Club, San Gorgonio (10/26/88) Jordan Torgerson (10/26/88)
George Stanton, PACFREEZ (10/25/88)
Sierra Club, Angeles Chapter (10/24/88)
LWV of So CA (10/24/88)
SoCalGas (10/24/88)
American Lung Assn. of CA (10/24/88)
Econ. Devel. Corp. of LA Co. (10/24/88)
Minority Coalition for Responsible Growth (10/22/88)

Coalition Against the Pipeline/Pollution (10/22/88)
Joyce Leslie (10/22/88)
Sup. Barbara Riordan, San Bernardino Co. (10/12/88)
LWV, San Bernardino and Redlands (10/12/88)
City of Seal Beach (9/15/88)
City of Costa Mesa (9/7/88)
BIA of So. CA (8/12/88)

Response:

The 1988 AQMP development and review process represents the AQMD's most ambitious public outreach effort to date. AQMD and SCAG staff have held over 150 briefings since June 30, 1988 on the preliminary and draft plan. These briefings targeted elected officials and staff, other agencies, business interests, technical and professional organizations, environmental groups, and community groups representing a range of concerns and interests. The AQMD also has mounted an aggressive media campaign to make sure the general public is aware of the AQMP and overall agency air pollution control efforts.

It should be noted that adoption of the AQMP does not mean the end of the public's involvement in air quality planning issues. In setting the plan adoption hearing date, the AQMD Board directed staff to work with SCAG staff to propose the establishment of regional task forces to help develop a framework for incorporating such considerations as job housing balance, socio-economic impact analysis and public participation/public education into the ongoing plan implementation and revision process. Such task forces, which would report back to the AQMD Board within 9 to 12 months, would supplement ongoing AQMD and SCAG advisory groups and public outreach activities. The task forces would include at a minimum representatives of large and small business, labor unions, ethnic minorities, academic and research institutions, homeowner and community groups, other agencies and local government.

In response to the request for an additional public hearing in the City of Los Angeles, the AQMD Board scheduled the final AQMP hearing for December 16 in the Los Angeles County Board of Supervisors Hearing Chambers in downtown Los Angeles. The Board selected this facility, which is accessible by public transportation, to ensure that all interested persons could attend.

Finally, although the AQMP does not address toxic or hazardous air pollutants, the AQMD recognizes the need to improve its ability to respond to requests for information and assistance. Possible improvements are being investigated to the complaint lines, so that the public can reach AQMD staff and receive answers to questions more quickly.

RESPONSE TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

MOBILE SOURCES

Comment: Clean Fuels

With regard to the transportation sector issues, it is extremely important to include all clean fuels (i.e. compressed natural gas (CNG), liquified natural gas (LPG), electricity, ethanol, and methanol) until and unless demonstration programs (or other issues) rule out one or more of the fuels. The pro-methanol bias in this report needs to be softened so that all clean fuels are considered, since proven technology exists for the use of natural gas by automobiles, buses, and internal combustion engines.

**Commentors: San Diego Gas and Electric Co.(10/25/88)
Southern California Gas Association (8/16/88)
Southern California Gas Association (8/10/88)
Southern California Gas Association
(10/24/88)
Western Liquid Gas Association (10/27/88)
Unocal Corporation (10/27/88)
Chevron (10/12/88)
Chevron (10/24/88)
Chevron (10/26/88)
Chevron (10/27/88)
American Gas Association (10/25/88)
Cable Airport (10/25/88)
Sun Fuels Inc. (8/2/88)
Sun Fuels Inc. (10/27/88)
San Diego Gas and Electric Company
State Senator Rose Ann Vuich (5/9/88)
Mesa Limited Partnership (7/6/88)
California Council for Environmental and
Economic Balance (8/15/88)**

MOBILE SOURCES

Scott Herbertson (10/26/88)

Los Angeles Area Chamber of Commerce (10/24/88)

Western Oil and Gas Association (10/27/88)

League of Women Voters (10/27/88) (tr)

Response:

According to the SCAQMD's Clean Fuels Program, alternative clean fuels are defined as those which produce less ROG, NO_x, CO, and Particulate Matter (PM) as compared to conventional fuels and are at least as clean as methanol when burned in an internal combustion engine, turbine, or boiler.

Based on the above definition, any clean fuel which can demonstrate to burn as clean as methanol could potentially be used in applications requiring alternative fuels. The draft Appendix IV-E will be expanded to document other alternative fuels including liquid petroleum gas, compressed natural gas, electricity, hydrogen, and solar energy (solar cells). The intent of the clean fuels appendix is to provide available literature on the applications of various clean fuels.

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MOBILE SOURCES

Comment: Clean Fuels

How can we know if we are improving public health if we don't know "...the effects of exposure to methanol and its exhaust products..." on public health. Methanol test data to date has not been made public, and the Federal Test Procedure (FTP) used to test methanol does not account for the adverse affects of the use of methanol as an alternative fuel source. Formaldehydes, which are carcinogenic, are found in methanol emissions and cannot be eliminated or discounted.

In the same light, the volatility of methanol and liquid natural gas are much higher than those of current conventional gasoline/diesel fuel used to operate trucks and other vehicles. This volatility translates to additional health and safety concerns for those travelling with or around vehicles equipped to operate with methanol fuel in the roadway. Also, methanol is much more soluble in water than conventional fuels, therefore the potential for groundwater and surface water contamination is much greater.

Commentors: City of Santa Ana (8/12/88)
Highway Carriers Association (8/7/88)
City of Santa Ana (10/27/88)
County of Los Angeles Department of Public Works (10/21/88)
Metropolitan Water District of Southern California (10/27/88)
McDonnell Douglas (10/26/88)
Chevron Corporation (10/22/88)
Chevron Corporation (10/27/88)
Mobil Oil Company (10/27/88)Western Oil and Gas Association (10/27/88)
Unocal (10/27/88)
California Trucking Association (10/12/88)
California Manufacturers Association (10/27/88) (tr)
Coalition Against the Pipeline (10/22/88) (tr)

Response: Before a methanol vehicle is sold in the Basin it must meet the Air Resources Board's (ARB) emission standards. The ARB is developing emission standards for the use of methanol, including a formaldehyde specific standard which would not allow emissions of formaldehyde to exceed those produced by conventional gasoline (passenger car)/diesel (trucks) vehicles. The SCAQMD is working

MOBILE SOURCES

with the Environmental Protection Agency (EPA) and ARB to test methanol emissions, including formaldehyde emissions.

Studies concerning methanol have been completed and are in progress for numerous topics including: health effects of automotive methanol vapors and formaldehyde produced by methanol, cancer epidemiology of formaldehyde, methanol flammability, safety considerations for storing, transporting, and dispensing methanol, and potential groundwater contamination of methanol fuels. The results of these analyses will be considered during subsequent rulemaking activity.

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Comment

Clean Fuels

It was noted that a large contributor of nitrogen dioxide is diesel fuel and yet there has been no attempt to regulate diesel vehicles and trucks.

Commentor:

City of Temple City (9/23/88)

Joyce Leslie (10/22/88) (tr)

League of Women Voters, Glendale-Burbank (10/24/88) (tr)

Response:

Currently, there is a standard for heavy duty diesel vehicles, which limits NOx emissions to 6.0 gms/bhp-hr. More stringent controls are proposed in the plan (Appendix IV-F), further limiting NOx emissions to 5.0 gms/bhp-hr. Control measure F-10 proposes the phase-out of diesel fuel for stationary sources.

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MOBILE SOURCES

Comment

Clean Fuels

Place the emphasis on alternative fuels, primarily methanol, and convert the public and private vehicle fleets as soon as possible. Does the SCAQMD intend to mandate alternative fuels for engines or vehicles in excess of 15 or more vehicles.

Commentor:

**Los Angeles County Transportation Commission
(8/12/88)**

Air Quality Subcommittee, Steve Glaser (8/12/88)

California Trucking Association (10/12/88)

Response:

SCAQMD, in cooperation with ARB, is developing Rule 1601 - Fleet Conversion to Clean Fuels - requiring operators of private and public vehicle fleets when adding or replacing vehicles to purchase vehicles capable of operating on clean fuels. The operators would be required to use these vehicles with clean fuels to the maximum extent possible when operating in the Basin.

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Comment

Clean Fuels

Riverside County Transportation Commission questions if the changes in travel behavior and shifts to alternative fuels envisioned by Tier II and Tier III strategies could really occur. It may be fine to consider such measures when considering "what if" scenarios, but how can you make it happen?

Commentor

Riverside Transportation Commission (8/17/88)

Response:

The SCAQMD, Southern California Association of Governments (SCAG), and ARB will use all of their powers, influence and legislative authority to implement Tier II and Tier III control measures. Implementation will be difficult, however it must be accomplished if the Basin is going to have clean air.

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MOBILE SOURCES

Comment: **Clean Fuels**

With respect to measure G-4 "Clean Fuels in New Fleet Vehicles" discussion in Appendix IV-A notes that flexible fueled vehicles (FFV) are the most likely alternative for most fleet operators. Yet the emission reduction estimates for this tactic ignore the fact that as long as methanol costs more than gasoline, FFVs would almost certainly use gasoline as the predominant fuel.

Commentor: **California Council for Environmental and Economic Balance**

Response: Proposed SCAQMD rule 1601-Fleet Conversion to Clean Fuels- requires operators of private and public fleets, when adding or replacing vehicles to form a new fleet, to purchase vehicles which are capable of operating on "Clean Fuels". Such vehicles will be required to be operated to the maximum extent possible on clean fuels when operating in the Basin.

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MOBILE SOURCES

Comment: Clean Fuels

A network of fueling stations would need to be set up throughout the Basin, or governments will have to install methanol fueling facilities at even greater cost to themselves. If most visitors cars burn only gasoline and the mandated fuel in the Basin is methanol, how do the visitors fuel their cars? The lack of an alternative fuel infrastructure outside of the Basin will make it impossible for the truckers. Marketing aspects of introducing alternative fuels should be discussed.

Commentors: Los Angeles County Transportation Commission, (10/25/88)
Blue Diamond Materials (10/11/88)
City of Buena Park (9/6/88)
Metropolitan Water District of Southern California (10/27/88)
Mobil Oil Co. (10/27/88)
California Energy Commission (10/27/88)
California Trucking Association (10/12/88)

Response: Initial requirements will be for fleet vehicles (Rule 1601) which would have dedicated fuel and servicing centers. As these vehicles become more common these centers will rapidly expand. Outside of the Basin, as more vehicles are produced the fuel service distribution network would spread nationwide. Flexible fuel vehicles would have the capacity to utilize both gasoline and clean fuels within and outside the Basin.

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MOBILE SOURCES

Comment: **Clean Fuels**

The ability of the petroleum industry to produce enough fuel was not addressed.

Commentor: **Los Angeles County Board of Supervisors (10/21/88)**

Response: The feedstocks for clean fuels are very abundant when compared to the available supply of oil. Since the utilization of very low emitting vehicles will be phased-in, the petroleum industry would be able to provide enough fuel to keep up with the demand.

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Comment: **Clean Fuels**

The Air Quality Management Plan (AQMP) should be revised to also focus on stringent emission limitations for motor vehicles and stationary combustion devices, rather than strictly specifying "clean fuels".

Commentor: **McDonnell Douglas (10/26/88)**
Western Oil and Gas Association (10/27/88)
Chevron U.S.A. Inc. (10/21/88)
Chevron U.S.A. Inc. (10/24/88)
Chevron U.S.A. Inc. (9/28/88)
Chevron U.S.A. Inc. (10/26/88)
Unocal Corporation (10/27/88)

Response: The AQMP will be revised to not exclude any new very low emitting vehicle technology. Reference to clean or alternate fuels will be revised to very low emitting vehicles.

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MOBILE SOURCES

Comment: **Clean Fuels**

Data have demonstrated that even with effective control of formaldehyde, the benefit of emissions reductions (from use of methanol) are not truly achieved until vehicles are using neat methanol (M100).

Commentor: **Mobil Oil Company (10/27/88)**

Response: The maximum emission reduction is achieved by using 100% methanol (M100). In some applications, a blend of gasoline and methanol (M85) is required. A blend (M85), which is a mixture of 15% gasoline to 85% methanol, gives satisfactory flame luminosity and cold startability, whereas M100 will not.

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Comment: **Clean Fuels**

Conversion to solar power should be undertaken. Solar technology should be exploited to the fullest extent possible before costly and polluting out of basin power plants are constructed.

Commentors: **Public Solar Power Coalition (10/12/88)**
 Public Solar Power Coalition (10/27/88)
 League of Women Voters (10/24/88)
 Edward H. Waldheim (10/24/88) (tr)

Response The SCAQMD is very supportive of solar power, because it is a truly clean fuel. In many areas, however, solar power is not currently economically feasible; therefore, economic and technical feasibility issues must be thoroughly investigated.

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MOBILE SOURCES

Comment: **Clean Fuels**

The SCAQMD is not currently advocating the use of diesel fuel additives as an interim measure of reducing oxides of nitrogen (NO_x) and particulate matter (PM) emissions.

Commentor: **California Trucking Association (10/12/88)**

Response: SCAQMD is very interested in fuel additives, which could potentially contribute to a significant emission reduction at a minimum cost. Testing performed by the ARB, however, have not demonstrated that any fuel additive, currently on the market, reduces emissions. There are several fuel additives currently being tested that do appear to have potential for producing emission reductions. Further emission testing must be completed before any conclusions can be made.

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Comment: **Clean Fuels**

With gasoline you may be able to drive an automobile 25 miles per one gallon whereas with methanol you may only be able to drive 12 miles per gallon. In order to store methanol at the service stations the storage tank will have to be twice as large as gasoline storage tanks and the material will have to be more resistant to corrosion.

Commentor: **The Coalition Against the Pipeline (10/22/88)**

Response: There is no argument that some clean fuels contain less energy per volume than gasoline. However, there is also less pollution per mile, even using this extra fuel. This extra fuel can be produced from abundant feed stocks.

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MOBILE SOURCES

Comment: **Electric and Retrofitted Vehicles**

The Executive Summary of the plan indicates a goal of 40% clean fuel passenger vehicles in the Basin by 2007 (pg.15). However, on pages 18 and 19 of the Attainment Strategies brochure calls for 10% electric and 20% methanol fueled passenger vehicles by 2007. Has the goal been intensified in the current document?

Commentor: **City of Buena Park (9/6/88)**

Response: The goal established for the transportation sector in Tier II control measures, those measures requiring significant advancement of today's technological applications and vigorous regulatory intervention, is to achieve very low emitting vehicles usage by forty percent of passenger vehicles, seventy percent of freight vehicles, and one hundred percent of transit buses.

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MOBILE SOURCES

Comment: Electric and Retrofitted Vehicles

The Tier II plan calls for 40% of passenger vehicles to shift to methanol, fuel cell or battery power, and for 70% of trucks and 100% of buses to do the same. The Tier III plan calls for 100% of passenger vehicles to operate on methanol/electric. I doubt if this will happen! Many people buy expensive new cars with the goal of keeping them operational for over a decade. To expect a massive shift in capital investment is unrealistic. How does the methanol/electric vehicle owner in LA drive his car across country? How does he sell it later, if he moves to another state? The point we are making is not that people won't cooperate for cleaner air, but that plans must be realistic and based upon long established living patterns.

**Commentors: Homeowners of Encino (August/8/88)
Mobil Oil Co. (10/27/88)**

Response: Tier II transportation control measures have the following as a goal: 40 percent new passenger vehicles use with very low emitting technology fuels and 70 percent new freight vehicles use with very low emitting technology, and all diesel buses to convert to very low emitting technology (measure G-2 would require clean fuel retrofit of transit buses). Tier III measures, such as those requiring all mobile sources be powered by electricity or clean fuels, are designed to bring about major technological breakthroughs and as such promote research, development and widespread commercial application of technologies that might not yet exist.

Electrification in the transportation sector can provide the greatest emission reduction possible amongst all sectors studied. Feasibility depends largely on commercialization of electric vehicles, better vehicle performance, substantial funding commitments to roadway construction or modification, and broad public acceptance of significant changes in infrastructure.

The SCAQMD, with the ARB and local and regional transportation and planning agencies, will be responsible for ensuring that Tier III strategies are implemented. As these low

MOBILE SOURCES

emitting vehicles become more common, fueling and servicing centers will spread throughout the Basin and nationwide.

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MOBILE SOURCES

Comment: Electric and Retrofitted Vehicles

Your agencies fail to recognize the utilization of existing retrofit technologies to combat air pollution. Utilization and retrofit emission control programs would immediately have a significant impact in reducing emission, and account for a reduction in pollution.

Commentor: Highway Carriers Association (7/7/88)
Inland Empire Economic Council (10/24/88)

Response: Retrofitting of motor vehicles is included in the AQMP as a means for reducing the emissions from motor vehicles. In Appendix IV-A, SCAQMD presents a Tier I control measure requiring the retrofit of diesel transit buses to use clean fuels as part of the normal life cycle maintenance and rehabilitation of a bus. The ARB has issued a request for proposals to evaluate currently available particulate trap oxidizer technology and select the most efficient design for reducing particulate emissions from heavy duty diesel engines (Appendix IV-F).

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Comment: Electric and Retrofitted Vehicles

What assurance is there that vehicles capable of being powered by either methanol or electricity will be produced by the market of satisfactory quality and quantity to meet this goal. A methanol retrofit of a transit bus has never been successfully demonstrated anywhere in the United States. Clearly, additional development of the retrofit technology is needed prior to requiring large scale retrofits of our transit fleets. Therefore, it appears to be infeasible to implement this measure by the 1997 goal.

Commentors: City of Buena Park (9/6/88)
Los Angeles County Transportation Commission (10/25/88)
California Council for Environmental and Economic Balance
(10/25/88)

Response: We recognize that original equipment manufacturers (OEM) may not initially produce clean fuel vehicles. However, after-market manufacturers will provide vehicle modifications such as retrofitting, and clean fuel vehicles. When a large enough sale volume occurs, OEM will then join the market. Electric buses are proven technology and are currently in use at other locations including San Francisco. Demonstration work is in progress for methanol buses. The District will support research and development efforts to provide the required air pollution control technology. If the technology for methanol retrofitting buses is not available by the year 2000, then the emission reduction must be achieved by other measures. Before any rules are adopted, demonstration projects and other analysis to assure satisfactory quality and quantity will be performed.

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Comment: Electric and Retrofitted Vehicles

What impact will non-clean fuel vehicles entering the Basin have on emission reductions? Would these vehicles have to be controlled in some manner to meet the Plan's emission reduction goals?

Commentor: City of Buena Park (9/6/88)

Response: Currently, a federal vehicle (tourist or commercial) is not prohibited from entering or operating in California or the Basin; therefore, vehicles registered outside of California would not be required to operate on clean fuels. The SCAQMD is working in conjunction with EPA to reduce federal emission standards which would apply to these out of state vehicles. The emission impact of these out of state vehicles would be similar to the current contribution.

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Comment: Electric and Retrofitted Vehicles

While electrification holds promise as a long-term measure, it is probably not possible to electrify 850 miles of bus lines in Los Angeles County by 1997.

Commentor: Los Angeles County Transportation Commission (8/12/88)

Response: Urban bus electrification is a control measure included with Tier I measures, which require full implementation of known technologies and management practices. Tier I control measures are expected to be adopted in the next five years and transportation facility constructions may be implemented over a time interval up to the year 2007.

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MOBILE SOURCES

Comment: **Electric and Retrofitted Vehicles**

We have been unable to replace our sunbeam electric reel-type lawn mower ...the only electric mowers available are rotary type which have a tendency to throw stones.

Commentor: **Alison Fuller (8/1/88)**

Response: Tier I control measure D-4 in Draft Appendix IV-A promotes and requires the sale of electric lawnmowers. Since electrical technology is available for lawnmowers, improvement in design could be expected with increased supply and demand for the product.

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Comment: **Electric and Retrofitted Vehicles**

Mobile sources are the major source of air pollution. Incentives to develop and produce environmentally safe engines for vehicles should be mandated by EPA.

Commentor: **Fontana Area Chamber of Commerce (10/27/88)**

Response: SCAQMD, ARB, and EPA are working with automotive manufacturers to develop low emitting vehicles. Included are clean fuel demonstration projects for passenger cars, heavy-duty trucks, small engines, locomotives, and stationary source engines. The federal government recently amended Corporate Average Fuel Economy regulations (CAFE) to allow fuel economy credits for alternative fueled vehicles.

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MOBILE SOURCES

SCAQMD CONTROL MEASURES

Comment: SCAQMD Control Measures

The control measure for Drive Through Facilities poses several concerns for cities, including localized traffic congestion stemming from vehicles entering and exiting drive-through facilities with inadequate driveways.

Commentor: City of Costa Mesa (9/7/88)
City of Costa Mesa (10/27/88) (tr)

Response: This proposed measure has been revised to include only the banning of new construction of drive through facilities rather than restrictions on design, location, or construction of existing facilities. The emission inventory for this control measure will be corrected so as not to be the total passenger car emission inventory.

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Comment: SCAQMD Control Measures

AQMP Measure No. D-7, Control of Emissions from Utility Equipment, requires the collection of particulate matter from diesel engines. This would result in additional volumes of solid waste which would require special disposal.

Commentor: Los Angeles Dept. of Public Works (8/11/88)

Response: The utility equipment controlled by the proposed measure Control of Emissions from Utility Equipment (D-7) includes lawn and garden equipment, chain saws, and general utility equipment. A combination of electrification, engine modifications, and substitution of four stroke for two stroke engines are proposed in this measure, while the collection and disposal of PM are not included. Therefore, a reduction of particulate emissions without an increase in waste disposal is predicted as a result of this measure.

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MOBILE SOURCES

Comment: SCAQMD Control Measures

AQMP Measure No. D-7, Control of Emissions from Utility Equipment, may require the conversion of units to electric power or from four stroke to two stroke gasoline engines. This is impractical for firefighters.

Commentor: County of Los Angeles (10/26/88)

Response: Safety is of great concern to the SCAQMD; therefore, if during the rulemaking process the fire department demonstrates the required engine modifications are impractical, then firefighting equipment would be considered for an exemption.

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Comment: SCAQMD Control Measures

Reduce the amount of motor vehicles by enforcing the California law requiring auto insurance. Those individuals who do not have insurance should have their motor vehicle registration withheld.

Commentor: Jack Lynn-James Jones Co. (10/25/88)
Western Oil and Gas Association (10/27/88)
American Lung Association of San Bernardino (10/12/88) (tr)

Response: There is a proposed contingency measure in the Addendum to Appendix IV-A, T-2 Limitation on Vehicle Registration, which suggests a limit be placed on the number of motor vehicle registrations within the Basin. Lack of automobile insurance could be one of the criteria used to decide who would be able to obtain registration for their motor vehicle.

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MOBILE SOURCES

Comment: SCAQMD Control Measures

Enforcement of smoking vehicles using diesel fuel should be undertaken.

Commentor: Jack Lynn - James Jones Co
Rheo Lawman (10/25/88)

Response: The District is supportive of legislation providing stiff penalties and tougher enforcement of smoking vehicle rules. SCAQMD has recently adopted three smoking vehicle programs: the citizen complaint program where a toll free phone is available to report smoking vehicles (phone number 1-800-CUT-SMOG); the SCAQMD-California Highway Patrol (CHP) smoking vehicle program where CHP officers patrol for smoking vehicles and issue citations and warnings; and the SCAQMD smoking bus program. A more complete description of these programs is found in the Addendum to Appendix IV-A; Control Measure G-5 Smoking Vehicle Enforcement Programs.

The use of very low emitting technology by new vehicles will eliminate smoke. The state of California has recently adopted diesel emission standards that will, in the future, result in smoke free vehicles.

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Comment: SCAQMD Control Measures

Why are off-road vehicles, such as those used in the San Gabriel River, which contribute to water and air pollution allowed in the Basin, when we are asking residents to make major changes in work travel and schedules.

Commentor: Alison Fuller (August 1, 1988)

Response: Currently, this source category is under study by the ARB , and depending on study results, measures for emission reductions may be adopted (Appendix IV-F).

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MOBILE SOURCES

Comment: SCAQMD Control Measures

My suggestion would be for companies to set up an internal car pooling plan among its own employees.

Commentor: Barbara Mauz (10/27/88)

Response: The SCAQMD adopted Regulation XV on December, 1987 with an implementation date of July, 1988, setting forth actions employers of 100 or more persons must take to promote employee participation in trip reduction and ridesharing. Also see SCAG's Appendix IV-G, control measure No. 2a., which proposes expanding Regulation XV to include employers of 25 or more persons.

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Comment: SCAQMD Control Measures

Why has the Tier II control: "Reduced Vehicle Usage Through Reduction of Vehicle Miles Travelled (VMT) to 1985 levels" been deleted from the September, 1988 Draft AQMP? While control of VMT could be unpopular, it may, in fact, be much more acceptable to the public than the controls being proposed.

Commentor: Mobile Oil Co. (10/27/88)

Response: The Tier II goal of reducing the amount of VMT to 1985 levels will appear as SCAQMD's proposed contingency measure, T-5.

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Comment: SCAQMD Control Measures

The AQMP treats emission sources inequitably and, fails to seriously address viable mobile source control measures, including natural gas vehicles.

**Commentor: Southern California Gas Company (10/24/88)
Inland Empire Economic Council (10/27/88)**

Response: Throughout the AQMP, the significant contribution of motor vehicles to overall emissions and thereby air pollution has been stressed. Numerous control measures have been proposed to reduce these emissions by both lowering the emissions through more stringent emission standards and lowering the amount of VMT through transportation management and ridesharing initiatives (Appendices IV-A, IV-F, and IV-G).

Very low emitting vehicle technology, including alternate fuels such as compressed natural gas (CNG), are an integral part of the strategy to lower emissions. Currently, SCAQMD and ARB are developing Rule 1601 "Fleet Conversion to Clean Fuels" requiring operators of private and public fleets, when adding or replacing vehicles, to purchase vehicles capable of operating on clean fuels.

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Comment: SCAQMD Control Measures

Many people commute from the desert portion of San Bernardino County into the Basin. Would an Implementation/Maintenance (I/M) Program in the desert portion of San Bernardino County have enough impact on emission reductions to merit implementation?

Commentor: Air Pollution Control District, San Bernardino, (7/12/88)

Response: The SCAQMD agrees this issue should be examined and proposes that a joint investigation be undertaken.

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MOBILE SOURCES

Comment: SCAQMD Control Measures

Emissions from diesel vehicles should be made comparable to gasoline automobiles. The Tier III strategy of requiring heavy duty trucks to operate on clean fuels should be given serious consideration.

Commentor: Sierra Club-Angeles Chapter, Steven Glaser (10/27/88)

Response: The ARB and EPA have set a 0.10 gm/bhp-hr standard for heavy-duty trucks for 1994 (1991 for urban buses). This standard must be met by advanced diesel control technology (particulate traps) or by use of alternative fuels. Due to the operating characteristics of trucks, where much of the driving is done under high load conditions, they are unable to meet the same emission standards as passenger cars. The SCAQMD is working towards the Tier III strategy of 100% of heavy duty trucks operating on alternative fuels. The District is also supportive of stringent Federal emission standards, comparable to California standards, to reduce the emission impact of vehicles produced for sale outside of the Basin and California.

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Comment: SCAQMD Control Measures

Encourage greater fuel efficiency and reduced toxic emissions from vehicles powered by alternative fuels.

Commentor: Air Quality Subcommittee, Steve Glaser (8/12/88)

Response: The SCAQMD in cooperation with the EPA and ARB have been encouraging improvements in engine/vehicle design for alternative fuels through demonstration projects. These have been jointly funded by private industry. The main purpose has been emission reduction including those of toxic emissions. Improved fuel efficiency has been a secondary goal.

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MOBILE SOURCES

Comment: **SCAQMD Control Measures**

I must express concern over the potential adverse safety impact the control measures necessary to achieve Tier I and II goals will have on the maritime industry afloat and ashore (control measures I-1, I-3, I-4, I-5).

While we believe safe vapor/emission control is technically feasible, we continue to have grave concerns over the speed with which proposed control measures are implemented, particularly when such implementation precedes the development of comprehensive national safety requirements. Requiring industry to hastily install systems without the benefit of final regulations and the required Coast Guard review, will most assuredly lead to the development of unsafe systems.

Commentor: **U. S. Dept. of Transportation, U. S. Coast Guard (10/26/88)**
U. S. Coast Guard, 11th District (10/27/88)
Chevron (10/26/88)

Response: The SCAQMD will work with the United States Coast Guard and private industry to ensure that all safety concerns are resolved during the rule adoption process.

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Comment: **SCAQMD Control Measures**

The SCAQMD AQMP should include a program for further study of the correlation between increased (or decreased) vehicle efficiency and air emissions. The SCAQMD should urge EPA and Congress to maintain and increase Corporate Average Fuel Economy (CAFE) standards as initially intended.

Commentor: **California Energy Commission (10/27/88)**

Response: An increase in fuel efficiency corresponds to a decrease in total automobile emissions, including mostly carbon dioxide, which has minimum harmful properties when compared to the criteria air contaminants. The SCAQMD will continue to study this issue.

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MOBILE SOURCES

Comment: SCAQMD Control Measures

The California Energy Commission (CEC) recommends a program for improving system management aspects of school bus fleets, a strategy which has been proven to reduce the number of buses required by 25 percent and improve efficiency by 50 percent.

Commentor: California Energy Commission

Response: The SCAQMD is very interested in the CEC's program of system management for school bus fleets. This appears to be a very cost effective measure. SCAQMD staff will study this program and contact the CEC staff for further information and discussion.

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Comment: SCAQMD Control Measures

The SCAQMD should consider going to a loaded mode inspection and maintenance program. The SCAQMD should support legislation to allow annual smog checks in the Basin.

Commentors: Inland Empire Economic Council (10/24/88)
Auto Check (10/27/88)
Jeb Stuart (10/24/88) (tr)

Response: Load mode testing is currently under study and is seriously being considered. The SCAQMD supports an annual smog check program.

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MOBILE SOURCES

Comment: **SCAQMD Control Measures**

Encourage people not to drive as much. For example, a vehicle registration fee for every year could be proportional to the number of miles driven during the past year. Have an emission fee for gasoline ... essentially a gas tax.

Commentors: **Sierra Club, Steve Glaser (10/24/88) (tr)**

Response: There are contingency measures that encourage a decrease in driving. These control measures include emission charges on gasoline and diesel fuel, emission charges for parking lots, emission charges based on vehicle usage, reduction of VMT to the 1985 level, control of vehicle registration, and user fees for on-road mobile sources. Control measures T-1, T-2, T-3, T-4, T-5, T-6 address these issues.

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Comment: **SCAQMD Control Measures**

Control measure T-1 "Emissions Charges on Gasoline and Diesel Fuels Used by Motor Vehicles" should be changed to "Emission Charges on Emissions From Motor Vehicles"

Commentor: **Chevron (10/26/88)]**

Response: It would not be feasible to measure emissions from individual mobile sources and thereby enforce the emission charges. Therefore the control must be based on fuel or vehicle type. Control measure T-2 relates to vehicle registration. If an alternate fuel or very low emitting vehicle were registered, then the vehicle could be considered for an exemption from this limitation.

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MOBILE SOURCES

Comment: SCAQMD Control Measures

Retrofit of particulate traps should be included as an option in control measure G-2 "Clean Fuel Retrofit of Transit Buses"

Commentor: Chevron (10/26/88)

Response: Particulate traps are under development by diesel engine manufacturers; however, they are not currently available in the marketplace. If a particulate trap would achieve the same emission reductions as a bus using alternative fuels, then they would be allowed as an option. This issue will be addressed during the rule development.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

AREAS OUTSIDE OF THE BASIN

Comment: Emissions

The Policy Proposals, as stated, rely heavily upon neighboring Air Pollution Control Districts (APCD) to review and adopt like Policy Proposals in order to effect a workable plan which will attain cleaner air standards for this air basin; yet no input is provided or mechanism described which demonstrates that these neighboring districts can accomplish this task or are being formally asked to comment on the initial Policy Proposals.

Commentor: City of Santa Ana (8/12/88)

Response: Copies of the AQMP were sent to the Ventura, San Diego, Santa Barbara, and San Bernardino Air Pollution Control Districts. Comments are accepted from all agencies including other APCD's from adjoining Air Basins. The AQMP is developed specifically for the South Coast Air Basin and includes jurisdiction over the major downwind air basin, South East Desert Air Basin. San Bernardino County Air Pollution Control District has been involved in the AQMP adoption and has expressed their support of the plan. The ARB develops a State Implementation Plan by assimilating the information provided by all of APCD's in the state.

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AREAS OUTSIDE OF THE BASIN

Comment: Emissions

For the AQMP to be implemented fully a significant increase in electric generation will be required. While the SCAQMD foresees this electricity to be environmentally benign in that it will occur outside the basin, this view may not be realistic, nor is it appropriate. Shifting the burden is not the solution. Such a policy runs counter to federal clean air efforts, including legislation to address acid rain, the greenhouse effect and other problems.

Commentors: Blue Diamond Materials (10/11/88)
Southern California Gas Company (8/16/88)
Southern California Gas Company (10/24/88)
American Gas Association (10/25/88)
Mobil Oil Co. (10/27/88)
Southern California Gas Company (10/88)
Western Oil and Gas Association (10/27/88)
American Lung Association of San Bernardino (10/12/88) (tr)

Response: Impacts resulting from increased demand for electricity generation can be minimized by Best Available Control Technology (BACT) and offset requirements within the Basin, including the Riverside and Los Angeles portion of the South East Desert Air Basin (SEDAB). Areas outside of the Basin will mitigate the emission impact of power generating facilities by following guidelines and regulations adopted by local air pollution control districts, the state, and the EPA.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

FORECAST OF EMISSIONS

Comment: Forecast of Emissions

Do restrictive emission control measures need to be implemented all year long when air pollution is most troublesome from June through September. Might the public be more supportive of personal sacrifices for better air quality within the Basin if they had to do so only when smog conditions are threatened?

**Commentor: Riverside County Transportation Commission (8/17/88)
Los Angeles Area Chamber of Commerce (10/24/88)**

Response: Controls on sources of pollution are required throughout the year due to the extent, distribution, and seasonal variation of air pollution throughout the Basin. The most significant concentrations of ozone in the Basin occur in the summer, however, in the winter months concentrations of carbon monoxide and oxides of nitrogen are the highest near the coastal regions, and concentrations of particulate matter are high in the eastern portion of the Basin during the summer and in the coastal and Orange counties in the winter. Regulation VII, developed by SCAQMD, outlines measures, including stationary source curtailment and traffic management, to be taken by source and receptor areas in the event of a prediction for a first, second or third stage episode for ozone and or sulfur dioxide episodes.

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FORECAST OF EMISSIONS

Comment: Forecast of Emissions

Strengthen the relationship between the proposed measures and the emission reductions

Commentor: Los Angeles County Transportation Commission (6/15/87)

Response: Estimated emission reductions associated with the AQMP proposed control measures are presented with each measure in the following Appendices:

Draft Appendix IV-A: Tier I and Tier II Control Measures

Draft Appendix IV-F: California's Post-1987 Motor Vehicle Plan For Continued Progress Toward Attainment of the National Ambient Air Quality Standards for Ozone and Carbon Monoxide--1988 Update

Draft Appendix IV-G: Transportation, Land Use, & Energy Conservation Measures

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Comment: Forecast of Emissions

The description of individual control measures lack specific information regarding 1985 conditions and information on recent trends. Recommend adding a background section and a column for 1985 baseline conditions.

Commentor: Air Resources Board (6/24/87)

Response: The baseline emission levels for the base year 1985 are shown in extensive detail in Appendix III-A: The 1985 Emissions Inventory for the Basin. Baseline emissions, projected emission levels, should no further control be introduced, are presented for the years 1985, 2000, and 2010 for each source of emissions associated with individual control measures presented in Appendices IV-A and IV-F.

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FORECAST OF EMISSIONS

Comment: **Forecast of Emissions**

Basic assumptions used in developing future vehicle emission inventories and the projected reductions should be summarized including reference to applicable policies, plans, and reports.

Commentor: **Air Resources Board (6/24/87)**

Response: Forecasted baseline emissions of criteria contaminants from mobile and stationary sources are presented in Appendices III-B and III-C. Included in these appendices are the growth factors for various socioeconomic and industrial categories used to project corresponding future emissions. Appendix III-D is SCAG's Draft Baseline Projection provides in more detail the background information for the development of the SCAG-87 growth forecast policy for population and employment in the Basin through the year 2010.

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Comment: **Forecast of Emissions**

A reference to state standards is necessary.

Commentor: **Raver (7/7/87)**

Response: State standards for the criteria contaminants are given in Appendix II-A: 1985 Summary of Air Quality in California's South Coast Air Basin.

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FORECAST OF EMISSIONS

Comment: Forecast of Emissions

We urge you to include a model in your final report that shows the effects on air quality if no additional growth were to be permitted in the Basin. This would provide a baseline on which to make intelligent decisions regarding public policy. Your chart on p. 3-9 of the June 1988 report contrasts the effect of growth vs. no growth, but does not go far enough. All charts, tables, maps, projections, etc., should include the no growth baseline.

Commentor: Homeowners of Encino (8/8/88)

Response: The major purpose of showing the percent change in emissions with and without growth is to demonstrate that the level of emissions are predicted to decrease by the year 2000 due to the effects of controls already in place, however by the year 2010 the levels of emissions will rise above the 1985 base year emissions due to the estimated growth in the region. Figures 3-3 through 3-7 show the difference in predicted emission levels with and without growth in more detail. The relative contributions by on-road mobile, other mobile, residential/commercial/service sectors, and industrial/manufacturing sectors are shown for the years 1985, 2000, and 2010.

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FORECAST OF EMISSIONS

Comment: **Forecast of Emissions**

There must be natural sources of emissions which are ignored by these documents. How much do these sources contribute to the overall emission level? Are there natural methods of "consuming" smog?

Commentors: **City of Agoura Hills (August 5, 1988)**
 Blue Diamond Materials (October 11, 1988)
 Southern California Gas Company (10/27/88)
 Unocal Corporation (10/27/88)
 Southern California Edison (10/27/88)
 Southern California Edison (10/15/88)

Response: The addendum to Appendices III-A, III-B, and III-C presents a section concerning emissions from vegetation. The Statewide Air Pollution Research Center at the University of California Riverside conducted an extensive research study which characterized the type, amount, and spatial distribution of emissions resulting from various forms of vegetation in the Basin. Using the Empirical Kinetic Modeling Approach (EKMA) urban airshed model (UAM) to assess the impact of these emissions on ozone formation in the Basin, it was estimated that the relative contribution by vegetation to ozone formation was less than 10% of that produced by anthropogenic sources of hydrocarbons.

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FORECAST OF EMISSIONS

Comment: Forecast of Emissions

In Control Measure B-9, how was it determined that the total PM emissions from gas fired petroleum refinery process heaters is 2.6 tons/day, which seems too high, and that 92% percentage of PM is less than 2.5 microns? Are these primary particles or secondary from NO_x and SO_x?

Commentor: Arco Products Company (10/26/88)

Response: Emission factors, developed from source tests of equipment, in conjunction with activity information, provided by individual companies when they file their emissions fees forms, are used to estimate the emissions from point sources. The estimate of the percentage, of particulate matter originating from process heaters with diameters less than 2.5 microns, was provided in an Environmental Quality Laboratory report cited in the control measure (Gray, 1986) and (KVB, 1979). Only primary particles are included in the estimate.

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FORECAST OF EMISSIONS

Comment: Forecast of Emissions

Southern California Gas Company's (SoCalGas) review of customer billing and equipment information indicates that the AQMP emissions inventory may have overestimated stationary source NOx emissions by up to 88%. This appears due to the failure of the AQMP to account for emissions reductions achieved through previously adopted regulations.

Commentor: Southern California Gas Company (10/24/88)

Response: Our understanding was that the 1985 emissions estimate for stationary source NOx emissions was similar to the one determined independently by SoCalGas and the significant difference was in the forecast of emissions to the years 2000 and 2010. The forecast of emissions is only seen as a first approximation to future emissions and it is understood that there is a large degree of uncertainty associated with the projection.

Emission controls resulting from previously adopted rules are included in the form of control factors per each control category. The forecast of emissions, presented in Appendix III-B, includes control factors developed for rules adopted prior to January, 1985 in addition to the new set of control factors developed for rules adopted between January, 1985 and December, 1987.

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FORECAST OF EMISSIONS

Comment: **Forecast of Emissions**

Two recently completed testing programs on automobiles conducted for the EPA and ARB indicate that vehicle ROG emissions may be between 2 and 10 times greater than previously estimated.

Commentor: **Southern California Gas Company (10/24/88)**

Response: We have requested the results from this study but as of this time have not received them. We are willing to analyze the results of the studies, if SoCalGas would provide us with copies. If it is clearly demonstrated that the emissions from automobiles have been significantly underestimated, then the revised estimates will be included in the emission inventory. The emissions inventory is continuously being updated and revised as more current data becomes available and/or as the methodology for estimating emissions is improved.

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Comment: **Forecast of Emissions**

The AQMP does not distinguish between air pollution emission reductions required to attain federal standards, as opposed to state air quality standards. Clarification of the two agency attainment goals should be more clearly stated in the document. Is it the AQMP's goal to attain federal or state air quality standards? What is the preferred priority for compliance?

Commentor: **City of Santa Ana (10/27/88)**
Orange County Board of Supervisors (10/27/88)

Response: According to current federal law all areas within the United States must be in compliance with federal air quality standards for criteria contaminants by December, 1987. California state law requires attainment by the earliest feasible date. The goal of the AQMP is for the Basin to achieve attainment with both the federal and state air quality standard. First priority is given to the federal standards followed by the state standards.

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FORECAST OF EMISSIONS

Comment: Forecast of Emissions

Control measure B-9, the measure proposes to reduce PM₁₀ emissions from refinery heaters by 90%. The proposed control technologies are Electrostatic Precipitators (ESP), baghouses or baghouses with coated filters. The emission inventory is estimated to be 2.6 tons per day (TPD), which is based upon SCAQMD emission factors of 21 lbs/MMft³ of fuel gas.

EPA publication "Compilation of Air Pollutant Emission Factor AP-42", which contains factors for combustion of gaseous fuels in Table 1.4-1, indicates the PM emissions would be 1-5 lbs/MMft³. One local refiner has obtained particulate matter emissions data from several gas fired heaters which indicated an average of 4 lbs/MMft³. This would appear to substantiate the emission factors developed by EPA for their sources. Thus, it would appear that emission estimates for refinery heaters and boilers are overestimated by a factor of 4-20.

Commentor: Western Oil and Gas Association(10/27/88)

Response: We note the difference in the two sets of emission factors for particulate matter from gas fired petroleum refinery process heaters. This emission factor will be studied further and pending the result of the analysis, the estimated emissions from petroleum refineries will be revised.

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FORECAST OF EMISSIONS

Comment: Forecast of Emissions

There is an interaction between control measures designed to reduce automotive vehicle miles traveled (VMT), and control measures whose emissions reductions are dependent upon the number of VMT. If overall VMT are reduced, the emission benefits of tailpipe controls will be correspondingly reduced. The AQMP double counts these emission reductions.

Commentor: California Council for Environmental and Economic Balance (10/25/88)

Response: This is not the case. In each control measure the emission reduction is estimated without taking into account the contributions of other measures. When estimating the overall emission reductions that result from all control measures the overlap and interaction between measures is taken into account. Therefore, in the AQMP the emission reductions from tail pipe control measures and VMT control measures are listed individually. The emission reductions that result from the interaction between the two sets of measures are then taken into account for an estimate in the total reduction of emissions.

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Comment: Forecast of Emissions

What magnitude of ROG (and any other) emissions could result from asphalt paving of facilities, including during road maintenance as required by SCAG measure 12.b "Unpaved Roads and Parking Lots"?

Commentor: Bryan Allen (10/24/88)

Response: Within the Basin, baseline emissions of ROG from this source category during 1985 were approximately 1 ton/day and are predicted to remain at that level in the year 2010. Increased ROG emissions resulting from this control measure have not been determined at this time, however the order of magnitude would probably be similar to present levels of 1 ton\day.

RESPONSE TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

MODELING

Comment: Basin Emission Carrying Capacity

The South Coast Air Quality Management District is required to separately identify the emission reductions and corresponding type and degree of implementation measures required to meet federal and state ambient air quality standards.

Commentor: County of Orange (10/17/88)

Response: Section 40463(b) of the California State Health and Safety Code specifies that, with the active participation of the Southern California Association Governments, a South Coast Air Basin emission carrying capacity for each state and federal ambient air quality standard shall be established by the South Coast District Board for each formal review of the plan and shall be updated to reflect new data and modeling results. A carrying capacity is defined as the maximum level of emissions which enable the attainment and maintenance of an ambient air quality standard for a pollutant. Emission carrying capacity for state standards shall not be a part of the State Implementation Plan requirements of the Clean Air Act for the South Coast Air Basin.

Emission carrying capacity as defined in the Health and Safety Code is an overly simplistic measure of the basinwide allowable emission levels for specific ambient air quality standards. It is highly dependent on the spatial and temporal pattern of the emissions. Because of the multicomponent nature of PM₁₀, carrying capacity for the each contributing emittant can vary significantly. For ozone and secondary PM₁₀ components, the carrying capacity are a non-linear function among their precursors.

Based on the modeling results for the 1988 AQMP Revision, a set of carrying capacity can be defined corresponding to federal and state ambient air quality standards for CO, NO₂, PM₁₀, and O₃ (see Table 1). These estimates are based on emission patterns estimated for the year of

MODELING

2010. The modeling results indicate that all the Tier II control measures will be required to barely meet the federal 24-hour standard for PM₁₀ and all the Tier III control measures will be needed to meet the federal ozone standard. There were no estimations made for the carrying capacity for the state PM₁₀ and ozone standards for the 1988 AQMP Revisions.

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TABLE 1

**EMISSION CARRYING CAPACITY ESTIMATION UPDATE FOR THE 1988
AQMP REVISION FOR THE SOUTH COAST AIR BASIN**

Pollutant	Standard	Carrying Capacity Estimate (tons/day)				
		ROG	NOx	CO	SOx	PM
CO	Federal 1-hour			7900		
	Federal 8-hour			3300		
	State 1-hour			4500		
	State 8-hour			4200		
NO ₂	Federal Annual		920			
	State 1-hour		620			
PM ₁₀	Federal 24-hour		364		47	1370
	Federal Annual		540		47	1370
O ₃	Federal 1-hour	200				
OVERALL BASINWIDE		200	364	3200	47	1370

RESPONSE TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

CONTINGENCY MEASURES

Comments: Time and Place-Specific Control Measures

The District should examine whether time-of-day, seasonal, or locational-specific control measures could be effectively used to reduce the cost of meeting federal air quality goals.

**Commentors: Los Angeles Area Chamber of Commerce (8/15/88)
Los Angeles Area Chamber of Commerce (9/28/88)
Minority Coalition for Responsible Growth (10/22/88)
Mr. Jeb Stuart (10/24/88)**

Response: From the 1984 Olympics experience, District understands the importance of having an integrated control strategy including time and place-specific control measures. However, these types of measures are included in the AQMP only as contingency plan measures in the event that some of the technological breakthroughs expected in Tier I and Tier II are not realized. The feasibility and potential impacts on air quality of these type of measures will be further examined in the next few years. Most of the transportation management measures included in the AQMP are also time and place-specific controls which were mainly responsible for the better air quality during the 1984 Olympics period.

The Los Angeles Area Chamber of Commerce indicated in its comments dated September 28, 1988 that the chamber is preparing a list of measures which should be studied to see if this approach would be feasible. District has not received the list. District is preparing to conduct a modeling and planning study with EPA funding to determine the feasibility of implementing a locally implemented control program. At the present time, the measures identified to be considered include:

Noontime work starts of summer days

Noontime work starts in the coastal/central areas

Disincentives for vehicles in business areas

CONTINGENCY MEASURES

Emergency plan measures required for forecast Stage I episodes

Shutdown of non-essential services during forecast Stage I episodes

Prohibition of single-occupant vehicles from entering the freeway system

Provision of free bus rides during summer

Banning organic solvent use on forecast Stage I episodes

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

MODELING

Comment: **The Proper Use of Urban Airshed Model (UAM)**

A number of comments have been raised related to the proper use of the Urban Airshed Model (UAM). Specifically, the model assumptions and algorithms, model performance evaluation, and recommendations for further model development are the focal points of the comments.

Commentor: **Southern California Gas Company (10/24/88)**

Response: Specific comments submitted by the Southern California Gas Company (SoCalGas) were prepared by SRI International. The comments submitted to the District failed to recognize that the UAM with the most up-to-date Carbon Bond Mechanism (CBM-4) is the EPA-recommended modeling technique for ozone SIP preparation. A significant body of knowledge has been made available in the past decade on the theory and application of UAM, particularly in the South Coast Air Basin. The District is actively involved in the enhancement and refinement of the modeling technique and data gathering/processing. Even though most of the issues raised by SRI can be resolved by consulting available technical documents prepared specifically for UAM, District staff has prepared the following point-by-point response:

Sensitivity Analysis

SoCalGas requests an explanation as to why the sensitivity analysis was not performed on the model before the AQMP was released. The sensitivity of model predictions to most model input parameters and emission perturbations has been examined and documented in a number of documents (a list of references is attached at the end of this response). For the 1988 AQMP Revision, the District has completed a number of sensitivity runs to determine the impacts of boundary conditions, initial concentrations, atmospheric stability, combinations of specific measures, across-the-basin NO_x and ROG reductions, and concentrations of radical-forming species, and windfield perturbations. These UAM sensitivity runs

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were conducted as diagnostic analyses to provide confidence of model predictions and to estimate the approximate effectiveness of controls. Because most of these runs were conducted using intermediate data files (detailed final data files were not available at the time and were not necessary for diagnostic analysis), it is very difficult to document and to formally present the results here. However, staff intends to publish the results of these sensitivity runs in technical journals for peer review. The model performance evaluation was conducted with participation of ARB, EPA, and private sector. SoCalGas did not choose to participate in that process. District invited the modeling community to two modeling workshops in mid-September to discuss with staff the details of the sensitivity runs. SRI did attend one of the two workshops, but did not contact District staff on this matter.

Value of UAM Predictions

SoCalGas stated in its comments that errors of at least 30 percent and the lack of sensitivity analyses should restrict the model use to trend analysis, not attainment determination. The model performance can not be described accurately with a single parameter. Further, the exact meaning of the 30 percent error estimate is unclear. While staff agrees that there is uncertainty associated with absolute value peak ozone predictions, particularly for cases associated with great emission reductions, the UAM is recommended by EPA for use in regulatory applications to determine compliance.

Any scientific prediction is a "best guess" at this time rather than a confirmed solution. Actual long term strategies may very well change as our knowledge of the subject increases; scientific predictions will not cease once the AQMP is published. However, the federal AQMP process requires that a "confirmed solution" be provided. The UAM has been approved for use in this regulatory context after 11 years of testing by the EPA and others. Although the UAM was updated recently in chemistry and numerical advection, the basic model has not been changed substantially during those 11 years. Any significant changes to the UAM will require considerable testing and evaluation by the EPA before the new UAM could be used in the present type of regulatory context.

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Use Different Models

UAM is an episodic photochemical dispersion model which requires detailed aerometric and emission data as input. It is not appropriate for use in annual NO_2 and PM_{10} analysis because of the lack of detailed data for 365 days of a year. Further, the gas-phase chemistry used for ozone modeling in UAM is inadequate for aerosol and NO_2 predictions. The annual PM_{10} dispersion model and the annual NO_x model developed by the District are state-of-the-art analytical techniques for analysis of these pollutants. The Chemical Mass Balance Receptor model developed for EPA and ARB, and the advanced receptor modeling techniques used by the District, can provide additional data for PM_{10} source apportionments. The June 5-7, 1988 episode used for ozone modeling is not appropriate for short-term NO_2 analysis simply because it is not a peak NO_2 episode. Actually, peak ozone and NO_2 episodes would virtually never occur at the same time. The District is planning to commission a study to include detailed aerosol treatment into the UAM so that it can be used in the future to assess the impact of ozone and PM_{10} concurrently.

Chemistry

SRI could not readily locate information that could be critically examined on the atmospheric chemistry module of the UAM. In fact, EPA made available the documentation of the CBM-4 through the release of the new version of EKMA model in early 1987. Many state and local agencies have applied the chemistry and the mechanism.

Grid Cell Resolution

Although a finer resolution in the horizontal dimensions of the grid squares may provide better simulation results, the gridded emission inventory is not resolved to less than 5 km. Thus, unless the emission inventories are more finely resolved, any changes to the UAM will give essentially the same results. This would be true with any grid model, including the VEGAS model. The paper by Tran and Cuq (1988) shows that the VEGAS model and the UAM give essentially the same ozone results. The VEGAS model should be recommended as a research tool until further testing is performed to evaluate the effects of such an algorithm. If a finer horizontal resolution is needed, then the question arises as to what horizontal resolution is good enough. Testing of horizontal grid resolutions in the South Central Coast modeling studies

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show that going from 2 to 4 km, the UAM gave essentially the same results. The model predictions begin to deviate at 8 km grid resolutions.

Transport

It is well known that the SHASTA algorithm employed in the UAM can produce extra mass under certain circumstances. This led to the use of the Smolarkiewicz algorithm in the UAM. The paper by Brost et al. (1988) discusses several experiments which compared the Smolarkiewicz advection algorithm with more sophisticated algorithms. Since the Smolarkiewicz algorithm is an advective algorithm, it does not carry a diffusion term specified by the diffusion coefficient (K_h). Brost et al. (1988) performed the experiments using a value of zero for K_h , which can explain the overpredictions in the observed plume concentrations. The horizontal diffusion coefficient can range from 50 to 50000 m²/s.

Boundary Conditions

Since the general wind patterns for the three-day period were generally westerly flows, it was important that the western and southern boundaries be specified as accurately as possible. The other horizontal boundaries represented outflow boundaries. Without air quality measurements, estimates of elevated pollutant concentrations in the aloft layers would be purely speculative. Any UAM simulation using higher pollutant concentrations aloft can only be treated as sensitivity runs.

Model Performance Evaluation

As stated in the AQMP modeling protocol and the Clean Air Act Amendments, the goal of the control strategy is to reduce peak regional ozone levels, which will lead to lower ozone levels at all stations. The performance criteria goals are developed to evaluate peak regional predictions. The UAM is the only EPA recommended guideline air quality model with stringent performance criteria. The use of the EKMA requires an analysis of the peak predicted ozone with the observed peak value. The acceptable performance goal is for EKMA is about the same for UAM. However, in contrast to the UAM, the performance criteria are not met, the EKMA can still be used in air quality analysis.

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RESPONSE TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

MODELING

Comment: **Effect of Stratospheric Ozone Depletion and Greenhouse Effects on Peak Ozone Concentrations**

The Plan's estimate of future ozone levels did not include additional increases resulting from the incipient Greenhouse Effect and loss of high altitude ozone shield.

Commentors: **University of California, Riverside (10/25/88)**

Response: The formation of photochemical oxidants is a complex process in which reactive hydrocarbons and nitrogen oxides react under the influence of sunlight. Both potential loss of high altitude ozone shield (which would increase the amount of ultraviolet radiation reaching the planetary boundary layer) and potential increase in temperature due to the greenhouse effect could enhance the formation of oxidants in the lower troposphere. However, AQMD analysis shows that the projected temperature increases due to greenhouse effect and the depletion of stratospheric ozone would not significantly increase the future tropospheric ozone estimates.

The following text briefly presents the analysis conducted to evaluate the impact of the projected tropospheric ozone levels and surface temperature increases on the estimation of lower atmosphere ozone levels. First, the projections of changes in future surface temperature and stratospheric ozone levels are presented. This is followed by the presentation of the results of modeling analyses performed to evaluate the impact of stratospheric ozone and surface temperature changes on lower atmosphere ozone levels. Finally, the modeling analyses results are used to determine increase in the estimated tropospheric ozone level due to the worst case scenario projected stratospheric ozone level and surface temperature.

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Projections of Changes

The estimation of future stratospheric ozone levels and temperature increases due to greenhouse effect is a difficult task. Due to the lack of complete understanding of the complex interactions between human activities and the environment and between the various components of the environment itself, the models developed for projecting stratospheric ozone levels and greenhouse effect involve significant uncertainties. The uncertainties in future emissions (e.g., chlorofluorocarbons, carbon dioxide emissions) compound the difficulty of projecting changes in stratospheric ozone levels and surface temperatures. These uncertainties are reflected by a wide range of projections that have been made for future stratospheric ozone levels and surface temperatures.

AQMD staff conducted a literature survey to determine the range of projections on temperature increase and depletion of stratospheric ozone. Of the studies on greenhouse effect that were reviewed (see list of references), the EPA study is the most recent. The EPA study projects that the average world wide temperature will increase by 4 to 5 degree Celcius in the next century (0.05 degree/year). On the basis of that projection, surface temperature would increase by 2.25 degree Kelvin from 1985 to 2010. On the basis of these results, under a worst case scenario, stratospheric ozone would decrease by 8.5 percent from year 1985 to 2010. This corresponds to an ozone depletion rate of 0.23 percent per year.

Urban Airshed Modeling

Gery and Whitten (1986 and 1987) conducted an extensive study of the effect of stratospheric ozone depletion and greenhouse effect on tropospheric ozone concentration levels. They used the OZIPM - 3 model to estimate the impact of photoradiational changes on urban ozone production. A number of scenarios for stratospheric ozone densities (0.3, 0.25, and 0.2 cm-atm.) and changes in surface temperatures (0, +2 K, and +5 K) were used as inputs to this model. Photochemical kinetic models, such as OZIPM-3, require baseline emissions (e.g., hydrocarbon and nitrogen oxides emissions) as inputs. Gery and Whitten projected these baseline emissions by using the EKMA model and assuming attainment of National Ambient Air Quality Standard for ozone in the region of interest.

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Table 1 summarizes the results of the modeling analyses conducted by Gery and Whitten. Based on these results, projected stratospheric ozone depletion and surface temperature increase for year 2010 could increase the tropospheric ozone estimate by up to 18 percent for a baseline peak concentration equivalent to the federal ozone air quality standard.

* * * * *

Table 1
Effect of Stratospheric Ozone Depletion on Surface Ozone
Concentration (ppm)*

Ozone Column Density (cm-atm.)	Change in Temperature (Degree K)		
	+0	+2	+5
0.30	0.115 (0)	0.119 (3.5)	0.119 (5.0)
0.25 (16.7)	0.146 (27.0)	0.152 (32.2)	0.155 (34.8)
0.20 (33.3)	0.212 (84.4)	0.219 (90.4)	0.229 (99.1)

* Gery and Whitten (1987)

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RESPONSE TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

MODELING

Comments: Secondary PM10 Formation in PM10 Modeling

The following three issues were raised regarding the District's PM₁₀ modeling and analysis and resulting PM₁₀ control strategy: (1) the scientific validity of the nitrate transformation equation development, (2) the inconsistency within the District's modeling approach of using different chemical mechanisms for PM₁₀ and ozone modeling, and (3) the assumption of independence between O₃ and PM₁₀ control strategies.

Commentor: Atlantic Richfield Company (10/26/88)

Response: The ERT/SAPRC mechanism, which characterizes the rate of sulfate and nitrate formation, was used for the PM₁₀ analysis, while the CB-IV mechanism was used for the ozone analysis. The AQMP modeling process took more than two years to accomplish and the resulting efforts represent the state of knowledge concerning air quality modeling during those efforts. In fact, the PM₁₀ modeling efforts were developed long before the ozone model was updated to include newer chemistry. The sulfate and nitrate transformation mechanisms were prepared for use in the PM₁₀ dispersion model approximately eight months before EPA released the CB-IV mechanism.

It is necessary to consider the overall PM₁₀ modeling approach in judging the importance of the choice of transformation mechanism. If no dispersion model was used, a source by source linear rollback would be employed, which would relate the concentration contribution of each source to the total emissions released from that source. This unfortunately would not take into consideration the time and location of emissions, the effect of stack height and plume rise, or the location of receptors in relation to the sources. A dispersion model is employed to account for these processes, in effect adjusting the linear rollback ratios (concentration/emissions) to account for dissimilar impacts of different sources. To properly model a secondary species, such as sulfate or nitrate, a time schedule for transformation from gaseous precursor to secondary

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particle phase must be included in the model. In earlier versions of this type of modeling effort for secondary species, a single average transformation rate was used throughout the basin to account for the time delay for gaseous emissions to become secondary particles. The District staff is working on an approach to improve upon that by including a realistic rate based on likely atmospheric conditions which could now vary in time and location.

The ERT/SAPRC mechanism is appropriate for this type of application. The mechanism is based on a large set of chemical reactions. The rates for individual reaction steps were obtained empirically from laboratory and smog chamber results. The major difference between mechanisms (ERT/SAPRC and CB-IV) concerns the chemistry solution algorithm, rather than the chemical reaction steps or rate information. EPA observed similar performance for these two mechanisms under typical urban conditions (hydrocarbon mixtures) for nitric acid concentrations.

When employing the model results to predict future PM₁₀ concentrations, the fractional contribution of each source type does NOT remain constant. The ratio of absolute concentration contribution from a source type to the emissions from that source type remains constant. These ratios are referred to as the transfer coefficients for the source class. For any change in emissions from a specific source type, the resulting change in PM₁₀ concentration is predicted by multiplying the transfer coefficient for the source type by the emissions change. The change in organic aerosol contribution to PM₁₀ concentrations due to the use of alternate fuels is included. The concentration change is due to the reduction in primary organic particle emissions and reactive organic gas precursor emissions. These emissions changes are reflected in the emissions inventory projections.

The reactivity of the organics may change due to some control measures and thus affect the secondary organic particulate matter formation rate. In order to account for this effect, a dispersion model is needed which contains a secondary transformation mechanism for organics. A reliable mechanism for this purpose was not available for this AQMP process; however, it is hoped that such a mechanism would be developed prior to the next AQMP update.

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The dispersion model was used to predict long-term pollutant concentrations (monthly and annual averages) and is therefore not very sensitive to the effect of altering ozone concentrations, which are typically high during only a small fraction of the modeled hours. While it is accepted that controls which greatly reduce ozone concentrations will have some effect on the secondary PM10 formation potential, and that modeling for future year PM10 concentrations should include these changes in atmospheric conditions, this is not practical for this AQMP modeling approach. The PM10 model development and application was performed long before ozone model results were available. Even if the ozone results were available, these results only consider a single episode and it would be nearly impossible to translate this information to gridded concentration estimates for every hour of the year.

In addition, the set-up and computer time required to run many additional future scenario model runs (for example, considering controls which affect the spatial distribution of emissions, such as NOx emission changes due to changes in traffic patterns) is beyond the scope of the present study. One of the major reasons why this type of model was used is that it can provide long-term pollutant concentration predictions inexpensively. More sophisticated models could have been developed; including many non-linear processes; however, these models could not be applied for long-term averages because the time step in the model would have to be shortened to approximately one minute instead of one hour. This would require an extensive amount of computer time.

The objective of the AQMP modeling approach is to assess the effect of controls on air quality. The changes in atmospheric conditions affecting formation potential is not as important to PM10 concentrations as the changes in emission rates from the major sources of PM10. The omission of the effect of ozone concentration changes on secondary transformation rates will add to the uncertainty of the model results. This will cause the transformation rate to be overpredicted for a handful of hours, and is therefore a minor conservative factor which is included in the results. Therefore, the District staff believes that the omission of ozone changes would not significantly change the results of source apportionment for PM10 nitrates.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN
MODELING**

Comments: Role of Biogenic Hydrocarbon Emissions

A recent study at Georgia Institute of Technology shows that in the Atlanta area, NO_x control may be more effective in reducing ozone because there is a considerable amount of vegetation emissions. The District should put a lot more resources in modeling to better understand issues like this.

**Commentors: Scott Anderson (10/27/88)
 UNOCAL (10/27/88)**

Response: The staff is familiar with the study conducted by Chameides, Lindsay, Richardson, and Kiang at Georgia Institute of Technology. The study results published on the 16 September, 1988 issue of Science magazine indicates that by including the biogenic hydrocarbon emissions as input to ozone EKMA analysis the control requirements put on anthropogenic hydrocarbon emissions will be greatly increased. Because of the large quantity of biogenic hydrocarbon emissions in and around the Atlanta region that will increase the NMHC/NO_x ratio, NO_x control may be viable alternative to ROG controls there.

With the data available to the District staff, the anthropogenic hydrocarbon emissions are about 20 times greater than those from biogenic sources in this Basin as compared to 50:50 split in Atlanta area. Even though the hydrocarbon species from biogenic emissions have higher photochemical reactivity, the spatial and temporal patterns of their emissions tend to limit their effect on peak ozone formation in southern California.

With the implementation of additional control of anthropogenic emissions, the relative importance of biogenic and geogenic emissions will become more important. The District agrees that additional resources will be needed for future modeling to better understand these important issues.

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**RESPONSE TO COMMENTS ON THE
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Comment: Compliance with Federal and State Standards

Several issues related to this topic were raised; (1) level of confidence for the projection, (2) rational for CO and NO_x control beyond standards for CO and NO_x, (3) Continuous compliance with SO₂ and lead standards, and (4) noncompliance with standards even with Tier III controls.

**Commentors: City of Irvine (10/18/88)
City of Irvine (10/25/88)**

Response: There is uncertainty associated with the model prediction especially for emission scenarios associated with large scale emission reductions. However, the average model-prediction of basinwide peak ozone concentrations are within five percent of the observed peak for the specific episode modeled. We are unable to provide uncertainty associated with the model-predicted peak ozone concentration for the Basin with the implementation of Tier III controls. Our projections as delineated in the draft AQMP is that with Tier III controls fully implemented, the entire Basin can comply with all federal standards but not with the state ozone and PM₁₀ standards. Continuous control of NO_x beyond that required for meeting the NO₂ standards is for the reduction of PM₁₀ concentrations, of which nitrates are a major component. Additional reductions of CO from mobile sources are the result of implementation of combustion-related ROG controls, which concurrently reduces CO emissions. Our estimation indicates that the Basin will be continuously in compliance with lead and SO₂ standards with the implementation of Tier I control.

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**RESPONSE TO COMMENTS ON THE
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MODELING

Comment: Modeling Air Quality Outside the Basin

Modeling of the impacts of various air quality measures should be extended further east past the Coachella Valley and further west out into the ocean in order to determine the nature inflow of air pollution components so that we have a true picture of the Basin; air quality.

Commentor: Inland Empire Economic Council (10/4/88)

Response: While this AQMP has been prepared for the South Coast Air Basin, District has every intention to address the air quality impacts of the controls on the air quality in the Coachella Valley. However, there is no adequate windfield and emission data east of Banning that can be used as input for model simulation of the transport and ozone formation. District Board committed \$400,00 to a three-year Inland (Coachella Valley) Air Quality Study in June 1987 to gather aerometric and emission data, to characterize the PM10 and visibility air quality, and to assess the impacts of growth in the inland areas so that the Coachella Valley can be effectively included in any future regionwide air quality planning effort. District is also required and in the process of preparing a separate SIP for PM10 in Coachella Valley with the promulgation of the federal PM10 standards. The entire Ventura County and the ocean area extended about 50 kilometers west of Santa Monica Bay have been included in the modeling domain to account for the inflow from the ocean.

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RESPONSE TO COMMENTS ON THE DRAFT 1988 AIR QUALITY MANAGEMENT PLAN

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Comments: Alternative Control Strategy

The District should examine the potential and feasibility of implementing a ROG-only and/or a high-ROG/low-NOx control strategy in the South Coast Air Basin.

**Commentors: Los Angeles Area Chamber of Commerce (8/15/88)
City of Rolling Hills (10/6/88)
County of Orange (10/17/88)
Western Oil and Gas Association (10/27/88)
Southern California Edison Company (10/27/88)
California Manufacturer's Association (10/27/88)
California Public Utility Commission (11/7/88)**

Response: Comments received by the District on this issue indicate that the District should evaluate the effectiveness of a mix of ROG and NOx controls which may produce lower ozone concentrations more cost-effectively than the District's proposed control strategy. It is essential to point out that state and federal law require the District to prepare the AQMP to demonstrate compliance with both the ozone and PM10 ambient air quality standards. Specific control measures have to be identified and analyzed to demonstrate the attainment of all standards.

The draft AQMP demonstrated that both Tier I and Tier II control measures are required to meet the federal PM10 standards, but will not be adequate to meet the federal ozone standard. ROG-only control measures will not be sufficient to bring the Basin close to the federal ozone standard. A high-ROG/low-NOx control scenario can only be approved/adopted if the specific measures identified can lead to compliance for both ozone and PM10. Based on the AQMP modeling results, the staff believes that this goal cannot be achieved without Tier III control measures.

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Southern California Edison Company (SCE) indicated in its comments on the Draft AQMP that an alternative control strategy, first including all the ROG-only control measures and then implementing a number of high-ROG/low-NO_x reduction measures, can lead the Basin very close to the ozone standard and meet the federal PM₁₀ standards. The staff has prepared the following response to the SCE proposed alternative strategy. The analysis presented here essentially is a feasibility study of this type of control strategy in meeting both the ozone and PM₁₀ standards.

Compliance with Requirements of State Standards

California State Health and Safety Code Section 40462 specifies that the plan and future revisions shall contain deadlines and schedules to achieve the state ambient air quality standards by the earliest date achievable by the application of all reasonable available control measures and technologies. Even though the control strategy as proposed in the Draft AQMP will not meet the state ozone and PM₁₀ standards, it includes all the control measures that are currently implementable and those requiring technology breakthrough. This indicates a strong commitment of the District to comply with the requirements of state law. The alternative ROG-only and/or the high-ROG/low-NO_x control strategy will not include available and implementable NO_x control measures which clearly will reduce the PM₁₀ concentrations and improve visibility. Thus, the alternative control strategy as proposed by SCE is in **direct violation of state requirements**.

PM₁₀ Analysis

The control strategy proposed by SCE will not bring the Basin into compliance with the federal PM₁₀ standards as proposed in the Draft AQMP. There are many similarities in the two analyses. However, a few important differences exist which greatly affect the results. The control strategy analysis performed by SCE uses District's modeling results obtained directly from the Draft AQMP and is, therefore, consistent regarding the relative source contributions to ambient PM₁₀ concentrations. There is a considerable disparity in the **design value** chosen for the 24-hour PM₁₀ standard, which is the base case air quality event used as a starting point to which growth and controls are applied. The

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District uses actual observed information to determine the 24-hour design value, whereas SCE chose to use a statistical measure to arrive at the design value. SCE also selected a different site as the **design site**. In addition, SCE's estimate of the PM10 emission reduction potential for **fugitive dust control** measures are grossly overestimated.

(A) Design Event Selection

Under contract with the District, the Environmental Quality Laboratory (EQL) at California Institute of Technology conducted a special PM10 measurement study during 1986 to gather chemically speciated concentrations at a number of locations in this Basin. Five of these locations coincide with District's PM10 monitoring sites. For regulatory purposes (compliance determination and control strategy design site), it is necessary to use PM10 concentration data collected at a District site, whereas it is useful to include chemically speciated information for modeling purposes (to determine source attribution). The monitoring station with the highest 24-hour and highest annual average PM10 concentrations in the SCAB is Rubidoux, where chemically speciated data are available for 1986. The peak 24-hour average PM10 concentration observed from every sixth day sampling during 1985 to 1987 occurred at Rubidoux on October 29, 1986. This was a meteorological event in that the secondary PM10 formation potential was very large and dispersion was severely restricted. However, this event does not qualify as a "rare and unusual" event by EPA's definition and cannot be disregarded as SCE contends, since it is not "an uncontrollable event caused by natural sources of particulate matter or an event that is not expected to recur at a given location" as specified in CFR Part 50 Appendix K.

The 24-hour design value is the PM10 concentration (and chemical profile) that represents the conditions present during the peak 24-hour PM10 occurrence in the SCAB. The peak 24-hour PM10 event observed on October 29, 1986 satisfies this requirement. The location (Rubidoux) experiences the highest PM10 concentrations during most of the PM10 "episodes" in the SCAB. The chemistry observed during this event is very representative of the chemistry on most other PM10 "episodes". Therefore, this event is used as the **design event** and the corresponding concentrations (PM10 and

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chemical species) are considered to be the design values which are to be rolled back to the PM10 standard levels when controls are implemented as specified in the Draft AQMP.

(B) Design Site Selection

SCE chose Fontana as the design site since Rubidoux "...is not representative of the SCAB as a whole." The discussion in SCE's Attachment C regarding the choice of the design site refers to CFR 40 Part 58 Appendix D, which outlines a methodology for selecting locations for monitor placement (network design). The design site (and design value) for modeling and control strategy evaluation are **NOT** supposed to represent the SCAB as a whole. The design value is supposed to be representative of a peak event in the SCAB. The federal 24-hour PM10 standard requires that a 24-hour average PM10 concentration level not be exceeded (more than three times in three years) **AT ALL LOCATIONS** in the SCAB (including those locations in the SCAB that are not measured, if information indicated that a higher concentration may have existed). The selection of network sites is made such that the monitors represent the surrounding urban, neighborhood, or rural areas. If PM10 concentrations exceed the standard at Rubidoux (and the surrounding community), then the SCAB is not in compliance. Choosing Fontana because it is a "representative urban scale site" is not appropriate. Long Beach could just as well be considered as a "representative urban scale site" since it is located in an urban setting within the metropolitan area. The 24-hour PM10 standard was never exceeded in the three year period of measurement at Long Beach.

It is necessary to select the absolute worst location (highest concentrations) to be the design site to assure basinwide compliance. In fact, the District's control strategy evaluation considers the entire SCAB when determining the effectiveness of controls (although only five locations are modeled for resulting concentrations). If a control measure affected only one location (Rubidoux, for example) then the other locations modeled would not show improvement after application of this measure. Examination of the Tier II control scenario demonstrates that this level of control will bring **ALL** locations to within the level of the 24-hour PM10 standard.

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(C) Design Value Computation

SCE employed a statistical approach to arrive at the design value, or "expected highest 24-hour average." This was accomplished by a graphic display method whereby the "design value corresponds to a frequency of 1/365 as read off a graph of the empirical frequency distribution of the data." It is not stated in SCE's Attachment C which underlying distribution is fit to the data, although it is assumed to be the log-normal distribution (since this distribution has graph paper available and is often used to fit air quality data). This procedure is valid only if the data can be shown to be of this type of frequency distribution. However, it is not clear that the log-normal distribution is the proper distribution to use for PM10 concentrations. It is a centralized distribution, meaning that the overwhelming majority of 24-hour concentrations, which are typically much lower than the peak, have a very large influence on the fit of the distribution, determining the shape (i.e. slope) of the curve. If one examines air quality data fit to log-normal distributions, it is usually observed that the data fit well in the central portion of the distribution but not at all well in the tails of the distribution, which are of interest here.

It is much better to assume an **extreme value distribution** (i.e. Weibull or Gumbel distribution) that places more emphasis on the data observed near the upper tail. Neil Frank, in the EPA PM10 Guidelines, recommends fitting an empirical distribution that utilizes the top 10% of the data to predict the "expected maximum 24-hour concentration." The District computed 24-hour PM10 design values assuming this distribution, using three years of PM10 data. At some locations, the design value was lower than the peak observed PM10 concentrations, while at other locations it was higher. The design value at Rubidoux, computed using this method, was 253 micrograms per cubic meter, while the observed 24-hour average PM10 peak was 294 micrograms per cubic meter (before nitrate adjustments).

District staff included a **nitrate adjustment** procedure to remove the bias present in the nitrate measurement results. This was necessary because it was discovered that a large amount of the collected nitrate (approximately 20% at Rubidoux) was lost from the filters between the time of collection and laboratory analysis.

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(This problem has since been corrected by a modification of storage procedures.) This resulted in an underestimate of back nitrate and PM10 concentrations during 1986. District staff carried out an experiment to estimate this bias. The results from this work are documented in the AQMP appendices. SCE did not utilize this information and is therefore using PM10 and nitrate design values which are lower than those used by the District staff.

(D) Fugitive Dust Control

An additional discrepancy between the SCE PM10 analysis and the District's AQMP exists concerning the PM10 emissions removal efficiency for fugitive dust control. SCE assumed that fugitive dust controls could remove **80%** of the airborne PM10 emissions from this area source class. District's estimates are much lower, in the range of **15% to 25%** removal for existing technology. SCE did not furnish any documentation to support this extreme level of dust abatement.

(E) Documentation

In the analysis performed by SCE, results from the District's PM10 models were used directly to apportion the PM10 to the source classes responsible. This indicates that the **source apportionment** performed by the SCE is **consistent** with the District's AQMP efforts. The difference in the results of the two analyses stems from different interpretations of how to apply these modeling results. The AQMP is well documented, allowing for a thorough examination of District's analysis. Documentation for the SCE analysis sufficient to support intermediate and final results has not been supplied to District, so it is difficult to confirm the values stated in SCE's presentation.

(F) Summary

District's evaluation of control strategies for PM10 abatement is the result of a multi-year coordinated effort of many researchers. The engineering decisions that were made regarding modeling, design values, and control implications have been considered carefully and are consistent with each other. The analysis performed for PM10 in the Draft AQMP indicates that a level of

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control corresponding to Tier II controls is required to meet both the federal annual and 24-hour PM₁₀ standards at all locations in the SCAB by 2010.

EPA Region IX is very concerned with SCE's approach in PM₁₀ analysis as it is technically deficient, and does not follow EPA policy and guideline requirements. Any PM₁₀ SIP submittal based along the lines of the SCE proposed approach would meet with EPA disapproval. Specifically, EPA agrees with District and disagrees with SCE on the following key issues: (1) EPA regulations and PM₁₀ SIP Development Guidance dictates the use of Rubidoux as the design site, (2) the highest value recorded at Roubidoux should be used as Basin design value, (3) the PM₁₀ episode occurred on October 29, 1986 does not meet the criteria of exceptional events and should be used for control strategy planning.

Ozone Analysis

The data presented by SCE indicate that (1) the implementation of all ROG-only control measures will reduce the Basin ozone peak from 30 pphm to about 18 pphm, (2) the implementation of all ROG-only and all ROG-NO_x concurrent control measures will bring the peak ozone concentrations down to 15.3 pphm, and (3) somewhere between the above two scenarios an optimal (minimum) peak ozone concentration of 13.4 pphm can be reached with all ROG-only measures and a few high-ROG/low-NO_x control measures.

AQMD staff has conducted a large number of UAM sensitivity runs and found that ROG-only and high-ROG/low-NO_x controls will not be adequate to meet the federal ozone standard. The staff examined the control measures included in the proposed alternative strategy and their associated emission reduction, and conducted independent UAM simulations to determine the feasibility of this type of control.

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(A) Selection of Control Measures

SCE has provided a list of control measures and associated emission reductions which were used to demonstrate attainment of the federal ozone and PM₁₀ standards. These measures were selected from the draft AQMP Tier I and Tier II controls. SCE suggested that if ROG-only control measures are implemented first, followed by measures having a high ROG to NO_x reduction ratio, the Basinwide peak ozone concentration could be reduced to very close to the standard without employing Tier III controls, thus resulting in a faster and cheaper path to clean air. A closer examination of SCE's alternative plan indicates the following:

1) Emission Reduction Potential

Two control measures on the list (N-5 and N-6: Lower emission standards for MDVs, R-12: 70% HDDTs converted to clean fuel) did not include concurrent NO_x emission reductions by about 90 tons/day. The result is an over-estimate of basinwide NO_x emissions of 90 tons/day.

2) ARB and SCAG Control Measures

From an implementation standpoint, it is not practical to exclude ARB and SCAG controls on mobile sources, simply because those measures will result in NO_x emissions alone or with ROG as well.

In the Draft AQMP, seven measures proposed by ARB for controlling motor vehicle NO_x emissions were scheduled for statewide adoption and implementation no later than 1990 and 1995/1996, respectively. These measures were proposed by ARB based on the multiple benefits of NO_x reduction on ozone, PM₁₀, visibility, and acid deposition. The ARB will base decisions on these measures on statewide needs. Therefore, it is reasonable to anticipate that even in the absence of the Draft AQMP, the ARB measures will still move forward. The SCE's alternative plan only chose one of the seven proposed measures, which may not be a realistic scenario. Table 1 lists these ARB measures.

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With regard to SCAG's transportation, land use, and energy conservation measures, all of them will reduce ROG as well as NOx emissions. Although most of the measures were chosen by SCE, four additional measures should also be included. Table 2 shows the SCAG measures excluded from the SCE selection.

The District staff constructed three modeling scenarios to test the feasibility of the alternative control strategies considering the measures listed above; (1) Scenario 1 (S1): a ROG-only control strategy using all ROG-only control measures under Tier I and Tier II controls, (2) Scenario 2 (S2): a repeat of SCE's control scenario using District's estimation of the reduction potential, and (3) Scenario 3 (S3): a realistic control scenario based on Scenario 2 and the ARB and SCAG measures as listed in Tables 1 and 2.

(B) Emission Estimation

Tables 3, 4, and 5 list the control factor files used for the three scenarios. It should be noted that ROG-only control factor file (as shown in Table 3) would be applied to the 2010 baseline emissions, as it does not include any SCAG measures. The control factor files for the other two scenarios are to be applied to the 2010 emission base with SCAG's Strategy 3 control measures in place.

Tables 6, 7, and 8 list the emission summary by source category for the three scenarios. The data shown here are the emissions in the entire modeling region on the first day of the three-day episodes and are not directly comparable to the Basin annual average emission estimates. Table 9 is a summary of the total emissions for these three scenarios.

(C) Air Quality Impacts

Table 9 also shows the model-predicted basin peak ozone concentrations. It is clear from Scenario 1 that with full implementation of all ROG-only control measures, the Basin will not meet the federal ozone standard but will be able to reduce it below the Stage I Episode level. The repeat of the SCE alternative control strategy simulation indicates that the Basin exceeds the

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federal ozone standard with or without the ARB and SCAG measures as listed in Tables 1 and 2.

Control strategies such as those proposed by SCE may result in higher ozone concentrations under a less severe meteorology. This may be caused by (1) enhancement of upper air influence, and (2) relaxation of the NO_x suppressing effect. The District staff conducted model sensitivity analysis and found up to 1 pphm ozone enhancement can be achieved for Scenario 2 (S2) by reducing the temperature gradient by one-third.

The control strategy as proposed by SCE will "push" the photochemical reaction to occur further inland in eastern San Bernardino/Riverside areas, including the Coachella Valley. It will also increase the NO₂ and nitric acid concentrations in the central and inland areas. The UAM simulation results indicate that the peak NO₂ and nitric acid concentrations for the SCE strategy are about 1.5 to 3.5 times higher than those for the control strategy proposed in the Draft AQMP.

Summary

ROG-only and high-ROG/low-NO_x controls were proposed for consideration as a viable alternative to the control strategy outline in the Draft AQMP. District analysis indicates that these no-NO_x and Low-NO_x control strategies (1) will not bring the Basin close to the federal PM₁₀ standards, (2) will not meet the federal ozone standards, (3) will cause higher NO₂ and nitric acid concentrations basinwide (1.5 to 3.5 times) than the control strategy proposed by the District, (4) will lead to higher peak ozone concentrations in less stable meteorology, (5) will cause higher ozone concentrations further inland and in Coachella Valley, and (6) will violate the state standard requirements for ozone and PM₁₀ -- to meet them expeditiously with all available control measures.

* * * * *

TABLE 1**ARB Control Measures Excluded from SCE Strategy**

Title	Date of Rule Adoption	Date of Implementation
Add Heavy Duty Gasoline Vehicles to Inspection and Maintenance Program [ROG, NOx, CO]	1983	1989
New Methanol-Fueled Buses [NOx, SOx, PM]	1986	1991
Heavy Duty Vehicle Smoke Enforcement Program [ROG, NOx, PM] ⁽¹⁾	1989	1990
Lower NOx Standard For Gasoline Light Duty Vehicles [NOx]	1993	1996
Lower NOx Standard For Heavy Duty Diesel Trucks [NOx]	1993	1997
New Methanol Fueled Buses [NOx, SOx, PM]	1986	1991
Improved Inspection and Maintenance and Elimination of Excess Emissions for Automobiles	1989	1995/1996

(1) Based on passage of enabling legislation

TABLE 2**SCAG Measures Excluded from SCE Strategy**

AQMP Measure No.	Title	Appendix No.
3.b	Diverting Port-Related Truck Traffic to Rail [ROG, NOx, CO]	IV-G
8	Airport Ground Access [ROG, NOx, CO]	IV-G
11.	Rail Consolidation to Reduce Grade Crossings [ROG, NOx, CO]	IV-G
19	Energy Conversation Measures [All Pollutants]	IV-G

TABLE 3
Emission Control Factor for ROG-ONLY Control Scenario

CONTROL CATEGORY	TOG	ROG	NOX	SOX	PM	CO	METH
99 UNSPECIFIED [CALCULATED]	.88	.47	1.00	1.00	.99	1.00	
101 UTILITY BOILERS - LIQUID	1.00	1.00	1.00	1.00	1.00	1.00	.0
102 UTILITY BOILERS - GASEOUS	1.00	1.00	1.00	1.00	1.00	1.00	.0
103 REFINERY BOILERS & HEATER	1.00	1.00	1.00	1.00	1.00	1.00	.0
104 RESIDENTIAL SPACE HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
105 RESIDENTIAL WATER HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
107 NON-UTIL I.C. ENGINES - G	1.00	1.00	1.00	1.00	1.00	1.00	.0
108 UTILITY RECIPROCAL - LIQU	1.00	1.00	1.00	1.00	1.00	1.00	.0
109 INDUSTRIAL BOILERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
110 CEMENT KILNS	1.00	1.00	1.00	1.00	1.00	1.00	.0
111 GLASS MELTING FURN CONTNR	1.00	1.00	1.00	1.00	1.00	1.00	.0
112 MARINE DIESEL ENGINES	1.00	1.00	1.00	1.00	1.00	1.00	.0
113 NON-FARM EQUIPMENT (DIESE	1.00	1.00	1.00	1.00	1.00	1.00	.0
114 SULFUR IN FUEL [CALCULATE	1.00	1.00	1.00	1.00	1.00	1.00	.0
116 UTILITY TURBINES - LIQUID	1.00	1.00	1.00	1.00	1.00	1.00	.0
117 REF BOILERS&HEATERS-GAS[C	1.00	1.00	1.00	1.00	1.00	1.00	.0
118 TEOR STEAM GENERATORS - L	1.00	1.00	1.00	1.00	1.00	1.00	.0
121 PIPELINE HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
122 MARINE VESSELS - COMBUSTI	1.00	1.00	1.00	1.00	1.00	1.00	.0
124 UTILITY TURBINES - GASEOU	1.00	1.00	1.00	1.00	1.00	1.00	.0
125 COGENERATION	1.00	1.00	1.00	1.00	1.00	1.00	.0
126 TEOR STEAM GENERATORS - G	1.00	1.00	1.00	1.00	1.00	1.00	.0
127 NON-UTIL I.C. ENGINES - L	1.00	1.00	1.00	1.00	1.00	1.00	.0
128 RESOURCE RECOVERY	1.00	1.00	1.00	1.00	1.00	1.00	.0
129 BOILERS-SPACE HEATERS-LIQ	1.00	1.00	1.00	1.00	1.00	1.00	.0
130 BOILERS-SPACE HEATERS-GAS	1.00	1.00	1.00	1.00	1.00	1.00	.0
201 FLARES	.80	.80	1.00	.70	.90	1.00	.0
301 ARCHITECTURAL COATINGS -	.38	.38	1.00	1.00	1.00	1.00	.0
302 ARCHITECTURAL COATINGS -	.38	.38	1.00	1.00	1.00	1.00	.0
303 ARCHITECTURAL COATINGS -	.09	.09	1.00	1.00	1.00	1.00	.0
304 AUTO ASSEMBLY LINE - SURF	.38	.38	.50	1.00	.50	1.00	.0
305 AUTO ASSEMBLY LINE - SOLV	.40	.40	1.00	1.00	1.00	1.00	.0
306 CAN & COIL - SURFACE COAT	.47	.47	1.00	1.00	.50	1.00	.0
307 CAN & COIL - SOLVENT USE	.47	.47	1.00	1.00	1.00	1.00	.0
308 METAL PARTS & PROD. - SUR	.43	.43	1.00	1.00	.50	1.00	.0
309 METAL PARTS & PROD. - SOL	.40	.40	1.00	1.00	1.00	1.00	.0
310 PAPER - SURFACE COATING	.42	.42	1.00	1.00	.50	1.00	.0
311 PAPER - SOLVENT USE	.50	.50	1.00	1.00	1.00	1.00	.0
312 FABRIC - SURFACE COATING	.50	.50	1.00	1.00	.50	1.00	.0
313 FABRIC - SOLVENT USE	.45	.45	1.00	1.00	1.00	1.00	.0
314 DEGREASNG NON-SYNTH&MISC	.25	.25	1.00	1.00	1.00	1.00	.0
315 DEGREASNG NON-SYNTH&MISC(	.25	.25	1.00	1.00	1.00	1.00	.0
316 CUTBACK ASPHALT PAVING MA	1.00	1.00	1.00	1.00	1.00	1.00	.0
317 DRY CLEANING (NON-SYNTHET	.09	.09	1.00	1.00	1.00	1.00	.0
318 DRY CLEANING (SYNTHETIC&M	.38	.38	1.00	1.00	1.00	1.00	.0
319 GRAPHIC ARTS-EXCPT LITHO/	.40	.40	.50	1.00	.50	1.00	.0
320 WOOD FURNITURE-SURFACE CO	.03	.03	1.00	1.00	.50	1.00	.0
321 WOOD FURNITURE - SOLVENT	.04	.04	1.00	1.00	1.00	1.00	.0
323 AUTO REFINISHING-SURFACE	.06	.07	1.00	1.00	.50	1.00	.0
325 SHIPS - SURFACE COATING	.35	.35	1.00	1.00	.50	1.00	.0

TABLE 3
(Continued)

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TABLE 3

(Continued)

[illegible]

TABLE 3
(Continued)[illegible]

TABLE 4
Emission Control Factor for OZONE-OPTIMAL Control Scenario

CONTROL CATEGORY	TOG	ROG	NOX	SOX	PM	CO	METH
99 UNSPECIFIED [CALCULATED]	.33	.31	1.00	.36	.73	.30	
101 UTILITY BOILERS - LIQUID	1.00	1.00	1.00	1.00	1.00	1.00	.0
102 UTILITY BOILERS - GASEOUS	1.00	1.00	1.00	1.00	1.00	1.00	.0
103 REFINERY BOILERS & HEATER	.75	.75	.75	.75	.75	.75	.0
104 RESIDENTIAL SPACE HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
105 RESIDENTIAL WATER HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
107 NON-UTIL I.C. ENGINES - G	.84	.84	.75	.90	.67	.74	.0
108 UTILITY RECIPROCAL - LIQU	1.00	1.00	1.00	1.00	1.00	1.00	.0
109 INDUSTRIAL BOILERS	.84	.84	.75	.90	.67	.74	.0
110 CEMENT KILNS	.84	1.00	.75	.90	.67	.74	.0
111 GLASS MELTING FURN CONTNR	.84	.84	.75	.90	.67	.74	.0
112 MARINE DIESEL ENGINES	1.00	1.00	1.00	1.00	1.00	1.00	.0
113 NON-FARM EQUIPMENT (DIESE	1.00	1.00	1.00	1.00	1.00	1.00	.0
114 SULFUR IN FUEL [CALCULATE	1.61	1.62	.84	.86	.77	1.00	.7
116 UTILITY TURBINES - LIQUID	1.00	1.00	1.00	1.00	1.00	1.00	.0
117 REF BOILERS&HEATERS-GAS[C	.75	.75	.75	.75	.92	.75	.0
118 TEOR STEAM GENERATORS - L	1.00	1.00	1.00	1.00	1.00	1.00	.0
121 PIPELINE HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
122 MARINE VESSELS - COMBUSTI	1.00	1.00	1.00	1.00	1.00	1.00	.0
124 UTILITY TURBINES - GASEOU	1.00	1.00	1.00	1.00	1.00	1.00	.0
125 COGENERATION	.84	.84	.75	.90	.67	.74	.0
126 TEOR STEAM GENERATORS - G	1.00	1.00	1.00	1.00	1.00	1.00	.0
127 NON-UTIL I.C. ENGINES - L	1.00	1.00	1.00	1.00	1.00	1.00	.0
128 RESOURCE RECOVERY	1.00	1.00	1.00	1.00	1.00	1.00	.0
129 BOILERS-SPACE HEATERS-LIQ	1.00	1.00	1.00	1.00	1.00	1.00	.0
130 BOILERS-SPACE HEATERS-GAS	.84	.84	.75	.90	.67	.74	.0
201 FLARES	.60	.60	.75	.53	.67	.75	.0
301 ARCHITECTURAL COATINGS -	.38	.38	1.00	1.00	1.00	1.00	.0
302 ARCHITECTURAL COATINGS -	.38	.38	1.00	1.00	1.00	1.00	.0
303 ARCHITECTURAL COATINGS -	.09	.09	1.00	1.00	1.00	1.00	.0
304 AUTO ASSEMBLY LINE - SURF	.32	.32	.38	1.00	.34	1.00	.0
305 AUTO ASSEMBLY LINE - SOLV	.34	.34	1.00	1.00	1.00	1.00	.0
306 CAN & COIL - SURFACE COAT	.40	.40	1.00	1.00	.34	1.00	.0
307 CAN & COIL - SOLVENT USE	.40	.40	1.00	1.00	1.00	1.00	.0
308 METAL PARTS & PROD. - SUR	.36	.36	1.00	1.00	.33	1.00	.0
309 METAL PARTS & PROD. - SOL	.34	.34	1.00	1.00	1.00	1.00	.0
310 PAPER - SURFACE COATING	.42	.42	1.00	1.00	.50	1.00	.0
311 PAPER - SOLVENT USE	.42	.42	1.00	1.00	1.00	1.00	.0
312 FABRIC - SURFACE COATING	.42	.42	1.00	1.00	.34	1.00	.0
313 FABRIC - SOLVENT USE	.37	.37	1.00	1.00	1.00	1.00	.0
314 DEGREASNG NON-SYNTH&MISC	.21	.21	1.00	1.00	1.00	1.00	.0
315 DEGREASNG NON-SYNTH&MISC(	.25	.25	1.00	1.00	1.00	1.00	.0
316 CUTBACK ASPHALT PAVING MA	1.00	1.00	1.00	1.00	1.00	1.00	.0
317 DRY CLEANING (NON-SYNTHET	.07	.07	1.00	1.00	1.00	1.00	.0
318 DRY CLEANING (SYNTHETIC&M	.31	.31	1.00	1.00	1.00	1.00	.0
319 GRAPHIC ARTS-EXCPT LITHO/	.40	.40	.50	1.00	.50	1.00	.0
320 WOOD FURNITURE-SURFACE CO	.03	.03	1.00	1.00	.34	1.00	.0
321 WOOD FURNITURE - SOLVENT	.04	.04	1.00	1.00	1.00	1.00	.0
323 AUTO REFINISHING-SURFACE	.06	.07	1.00	1.00	.50	1.00	.0
325 SHIPS - SURFACE COATING	.35	.35	1.00	1.00	.50	1.00	.0

TABLE 4
(Continued)

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TABLE 4
(Continued)

CONTROL CATEGORY	TOG	ROG	NOX	SOX	PM	CO	METH
761 MCY - COLD START	.50	.50	.50	1.00	1.00	.50	.0
762 MCY - HOT START	.50	.50	.50	1.00	1.00	.50	.0
763 MCY - HOT STABILIZED	.50	.50	.50	1.00	.50	.50	.0
764 MCY - HOT SOAK EVAP.	.37	.37	1.00	1.00	1.00	1.00	.0
765 MCY - DIURNAL EVAP.	.38	.38	1.00	1.00	1.00	1.00	.0
766 MCY - CRANKCASE BLOWBY	1.00	1.00	1.00	1.00	1.00	1.00	.0
767 MCY - TIRE WEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
801 NON-FARM EQUIPMENT (GASOL	1.00	1.00	1.00	1.00	1.00	1.00	.0
802 FARM EQUIPMENT (DIESEL)	.00	.00	.00	.00	.00	.00	.0
803 LAWN & GARDEN EQUIPMENT (	.26	.26	1.13	1.00	1.00	.33	.0
804 OFF-ROAD MOTORCYCLES	.50	.50	.50	1.00	.50	.50	.0
805 PLEASURE CRAFT (BOATS)	.40	.40	.40	1.00	1.00	.40	.0
806 RAILROAD LINE HAUL OPERAT	.10	.10	.10	.10	.10	.10	.0
807 COMM./CIVIL PISTON AIRCRA	1.00	1.00	1.00	1.00	1.00	1.00	.0
808 COMM. JET AIRCRAFT	.45	.45	.39	.71	.67	.44	.0
809 FARM EQUIPMENT (GASOLINE)	.00	.00	.00	.00	.00	.00	.0
811 LDA - NCAT - COLD START	1.00	1.00	1.00	1.00	1.00	1.00	.0
812 LDA - NCAT - HOT START	1.00	1.00	1.00	1.00	1.00	1.00	.0
813 LDA - NCAT - HOT STABILIZ	1.00	1.00	1.00	1.00	1.00	1.00	.0
814 LDA - NCAT - HOT SOAK	1.00	1.00	1.00	1.00	1.00	1.00	.0
815 LDA - NCAT - DIURNAL	1.00	1.00	1.00	1.00	1.00	1.00	.0
816 LDA - NCAT - CRANKCASE	1.00	1.00	1.00	1.00	1.00	1.00	.0
817 LDA - NCAT - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
821 LDA - CAT - COLD START	.48	.48	.80	1.00	1.00	.41	.2
822 LDA - CAT - HOT START	.48	.48	.80	1.00	1.00	.41	.2
823 LDA - CAT - HOT STABILIZE	.48	.48	.80	.58	.79	.41	.2
824 LDA - CAT - HOT SOAK	.63	.63	1.00	1.00	1.00	1.00	.3
825 LDA - CAT - DIURNAL	.65	.65	1.00	1.00	1.00	1.00	.3
827 LDA - CAT - TIREWEAR	1.00	1.00	1.00	1.00	.99	1.00	.0
831 LDA - DSL - COLD START	.80	.80	1.00	1.00	1.00	1.00	.0
832 LDA - DSL - HOT START	.80	.80	1.00	1.00	1.00	1.00	.0
833 LDA - DSL - HOT STABILIZE	.80	.80	1.00	1.00	.66	1.00	.0
837 LDA - DSL - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
841 LMDT - NCAT - COLD START	1.00	1.00	1.00	1.00	1.00	1.00	.0
842 LMDT - NCAT - HOT START	1.00	1.00	1.00	1.00	1.00	1.00	.0
843 LMDT - NCAT - HOT STABILI	1.00	1.00	1.00	1.00	1.00	1.00	.0
844 LMDT - NCAT - HOT SOAK	1.00	1.00	1.00	1.00	1.00	1.00	.0
845 LMDT - NCAT - DIURNAL	1.00	1.00	1.00	1.00	1.00	1.00	.0
846 LMDT - NCAT - CRANKCASE	1.00	1.00	1.00	1.00	1.00	1.00	.0
847 LMDT - NCAT - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
851 LMDT - CAT - COLD START	.50	.50	.83	1.00	1.00	.52	.2
852 LMDT - CAT - HOT START	.50	.50	.83	1.00	1.00	.52	.2
853 LMDT - CAT - HOT STABIL	.51	.51	.83	.78	.99	.52	.2
854 LMDT - CAT - HOT SOAK	.78	.78	1.00	1.00	1.00	1.00	.2
855 LMDT - CAT - DIURNAL	.80	.80	1.00	1.00	1.00	1.00	.2
857 LMDT - CAT - TIREWEAR	1.00	1.00	1.00	1.00	.99	1.00	.0
861 LMDT - DSL - COLD START	.80	.80	1.00	1.00	1.00	1.00	.0
862 LMDT - DSL - HOT START	.80	.80	1.00	1.00	1.00	1.00	.0
863 LMDT - DSL - HOT STABILIZ	.80	.80	1.00	1.00	.66	1.00	.0
867 LMDT - DSL - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
873 HDT - NCAT - HOT STABILIZ	.90	.90	.99	1.00	1.00	.93	.0

TABLE 4
(Continued)

[illegible]

TABLE 5

Emission Control Factor for REALISTIC OZONE-OPTIMAL Control Scenario

CONTROL CATEGORY	TOG	ROG	NOX	SOX	PM	CO	METH
99 UNSPECIFIED [CALCULATED]	.33	.31	1.00	.36	.98	.30	
101 UTILITY BOILERS - LIQUID	1.00	1.00	1.00	1.00	1.00	1.00	.0
102 UTILITY BOILERS - GASEOUS	1.00	1.00	1.00	1.00	1.00	1.00	.0
103 REFINERY BOILERS & HEATER	.75	.75	.75	.75	.75	.75	.0
104 RESIDENTIAL SPACE HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
105 RESIDENTIAL WATER HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
107 NON-UTIL I.C. ENGINES - G	.84	.84	.75	.90	.67	.74	.0
108 UTILITY RECIPROCAL - LIQU	1.00	1.00	1.00	1.00	1.00	1.00	.0
109 INDUSTRIAL BOILERS	.84	.84	.75	.90	.67	.74	.0
110 CEMENT KILNS	.84	1.00	.75	.90	.67	.74	.0
111 GLASS MELTING FURN CONTNR	.84	.84	.75	.90	.67	.74	.0
112 MARINE DIESEL ENGINES	1.00	1.00	1.00	1.00	1.00	1.00	.0
113 NON-FARM EQUIPMENT (DIESE	1.00	1.00	1.00	1.00	1.00	1.00	.0
114 SULFUR IN FUEL [CALCULATE	1.18	1.18	.61	.63	.56	.73	.7
116 UTILITY TURBINES - LIQUID	1.00	1.00	1.00	1.00	1.00	1.00	.0
117 REF BOILERS&HEATERS-GAS[C	.75	.75	.75	.75	.92	.75	.0
118 TEOR STEAM GENERATORS - L	1.00	1.00	1.00	1.00	1.00	1.00	.0
121 PIPELINE HEATERS	1.00	1.00	1.00	1.00	1.00	1.00	.0
122 MARINE VESSELS - COMBUSTI	1.00	1.00	1.00	1.00	1.00	1.00	.0
124 UTILITY TURBINES - GASEOU	1.00	1.00	1.00	1.00	1.00	1.00	.0
125 COGENERATION	.84	.84	.75	.90	.67	.74	.0
126 TEOR STEAM GENERATORS - G	1.00	1.00	1.00	1.00	1.00	1.00	.0
127 NON-UTIL I.C. ENGINES - L	1.00	1.00	1.00	1.00	1.00	1.00	.0
128 RESOURCE RECOVERY	1.00	1.00	1.00	1.00	1.00	1.00	.0
129 BOILERS-SPACE HEATERS-LIQ	1.00	1.00	1.00	1.00	1.00	1.00	.0
130 BOILERS-SPACE HEATERS-GAS	.84	.84	.75	.90	.67	.74	.0
201 FLARES	.60	.60	.75	.53	.67	.75	.0
301 ARCHITECTURAL COATINGS -	.38	.38	1.00	1.00	1.00	1.00	.0
302 ARCHITECTURAL COATINGS -	.38	.38	1.00	1.00	1.00	1.00	.0
303 ARCHITECTURAL COATINGS -	.09	.09	1.00	1.00	1.00	1.00	.0
304 AUTO ASSEMBLY LINE - SURF	.32	.32	.38	1.00	.34	1.00	.0
305 AUTO ASSEMBLY LINE - SOLV	.34	.34	1.00	1.00	1.00	1.00	.0
306 CAN & COIL - SURFACE COAT	.40	.40	1.00	1.00	.34	1.00	.0
307 CAN & COIL - SOLVENT USE	.40	.40	1.00	1.00	1.00	1.00	.0
308 METAL PARTS & PROD. - SUR	.36	.36	1.00	1.00	.33	1.00	.0
309 METAL PARTS & PROD. - SOL	.34	.34	1.00	1.00	1.00	1.00	.0
310 PAPER - SURFACE COATING	.42	.42	1.00	1.00	.50	1.00	.0
311 PAPER - SOLVENT USE	.42	.42	1.00	1.00	1.00	1.00	.0
312 FABRIC - SURFACE COATING	.42	.42	1.00	1.00	.34	1.00	.0
313 FABRIC - SOLVENT USE	.37	.37	1.00	1.00	1.00	1.00	.0
314 DEGREASNG NON-SYNTH&MISC	.21	.21	1.00	1.00	1.00	1.00	.0
315 DEGREASNG NON-SYNTH&MISC(	.25	.25	1.00	1.00	1.00	1.00	.0
316 CUTBACK ASPHALT PAVING MA	1.00	1.00	1.00	1.00	1.00	1.00	.0
317 DRY CLEANING (NON-SYNTHET	.07	.07	1.00	1.00	1.00	1.00	.0
318 DRY CLEANING (SYNTHETIC&M	.31	.31	1.00	1.00	1.00	1.00	.0
319 GRAPHIC ARTS-EXCPT LITHO/	.40	.40	.50	1.00	.50	1.00	.0
320 WOOD FURNITURE-SURFACE CO	.03	.03	1.00	1.00	.34	1.00	.0
321 WOOD FURNITURE - SOLVENT	.04	.04	1.00	1.00	1.00	1.00	.0
323 AUTO REFINISHING-SURFACE	.06	.07	1.00	1.00	.50	1.00	.0
325 SHIPS - SURFACE COATING	.35	.35	1.00	1.00	.50	1.00	.0

TABLE 5
(Continued)

CONTROL CATEGORY	TOG	ROG	NOX	SOX	PM	CO	METH
326 SHIPS - SOLVENT USE	.35	.35	1.00	1.00	1.00	1.00	.0
327 AEROSPACE - SURFACE COATI	.23	.23	1.00	1.00	1.00	1.00	.0
328 AEROSPACE - SOLVENT USE	.32	.32	1.00	1.00	1.00	1.00	.0
331 DEGREASING SYNTHETIC (IND	.21	.21	1.00	1.00	1.00	1.00	.0
332 DEGREASING SYNTHETIC (COM	.21	.21	1.00	1.00	1.00	1.00	.0
333 FLATWOOD PRODUCTS	.22	.22	1.00	1.00	1.00	1.00	.0
334 GRAPHIC ARTS-LITHO/LTTR P	.34	.34	1.00	1.00	1.00	1.00	.0
398 OTHER INDUSTRIAL SURFACE	.29	.29	1.00	1.00	.50	1.00	.0
399 UNSPECIFIED IND. SOLVENT	.34	.34	1.00	1.00	1.00	1.00	.0
401 GAS/METH WRKG LOSS-BULK S	.33	.33	1.00	1.00	1.00	1.00	.2
402 GAS/MET WKG LS-TNK CR/TRK	.33	.33	1.00	1.00	1.00	1.00	.2
403 GAS/MET WKG LS-UNDG TNK:S	.65	.65	1.00	1.00	1.00	1.00	.2
404 GAS/MET WKG-VEH REFUEL:SV	.59	.59	1.00	1.00	1.00	1.00	.2
405 FIXED ROOF TANKS AT REFIN	.68	.68	1.00	1.00	1.00	1.00	.0
406 FLOATING ROOF TANKS AT RE	.68	.68	1.00	1.00	1.00	1.00	.0
407 MARINE VESSEL OPERATION -	.05	.05	1.00	1.00	1.00	1.00	.0
410 OIL PRODUCTION FIELDS STO	.90	.90	1.00	1.00	1.00	1.00	.0
412 GAS/METH BREATHING LOSS -	.65	.65	1.00	1.00	1.00	1.00	.2
413 GAS/METH BREATH LOSS - AB	.60	.60	1.00	1.00	1.00	1.00	.2
502 PETROLEUM COKE CALCINING	1.00	1.00	.75	.75	.75	1.00	.0
503 SULFUR RECOVERY UNITS	1.00	1.00	.75	.90	.67	1.00	.0
504 SULFURIC ACID PLANTS	1.00	1.00	.75	.90	.67	.74	.0
505 FLUID CATALYTIC CRACKING	1.00	1.00	.56	.67	.50	.56	.0
506 GAS-OIL PROD.-VALVES, FLA	.25	.25	1.00	1.00	1.00	1.00	.0
507 SMALL RELIEF VALVES	.19	.19	1.00	1.00	1.00	1.00	.0
508 NON-REFINERY VALVES	.25	.25	1.00	1.00	1.00	1.00	.0
511 PAINT MANUFACTURING	.84	.84	.75	1.00	.67	1.00	.0
512 RUBBER PRODUCTS FABRICATI	.17	.17	.75	1.00	.17	.74	.0
513 CHEMICAL MANUFACTURING	.84	.84	.75	.90	.67	.74	.0
514 PHARMACEUTICAL MANUFACTUR	.84	.84	1.00	1.00	1.00	1.00	.0
515 RUBBER PRODUCTS MANUFACTU	.21	.21	.75	1.00	.17	1.00	.0
517 OIL REF.-SECONDARY OIL/WA	.08	.08	1.00	1.00	1.00	1.00	.0
519 WINERIES	1.00	1.00	1.00	1.00	1.00	1.00	.0
522 PUMPS & COMPRESSORS	.25	.25	1.00	1.00	1.00	1.00	.0
524 REFINERY PUMPS & COMPRESS	.19	.19	1.00	1.00	1.00	1.00	.0
530 OIL PROD. PUMP & COMPRESS	.25	.25	1.00	1.00	1.00	1.00	.0
534 OIL PRODUCTION SUMPS & PI	.10	.10	1.00	1.00	1.00	1.00	.0
535 NATURAL GAS PLANT FUGITIV	.22	.22	1.00	1.00	1.00	1.00	.0
601 CONSTRUCTION & DEMOLITION	1.00	1.00	1.00	1.00	1.00	1.00	.0
602 WASTE SOLVENT DISPOSAL	1.00	1.00	1.00	1.00	1.00	1.00	.0
608 WASTE DISPOSAL LANDFILL	1.00	1.00	1.00	1.00	1.00	1.00	.0
610 AEROSOL CONSUM PROD PROPE	.22	.22	1.00	1.00	1.00	1.00	.0
611 AEROSOL CONSUM PROD SOLVE	.22	.22	1.00	1.00	1.00	1.00	.0
612 NON-AEROSOL CONSUM SOLV [	.21	.21	1.00	1.00	1.00	1.00	.0
620 AGRICULTURAL PESTIC-SYNTH	.00	.00	1.00	1.00	1.00	1.00	.0
621 AGRICULTURAL PESTIC-NON-S	.00	.00	1.00	1.00	1.00	1.00	.0
622 OTHER PESTIC - SYNTHETIC	.60	.60	1.00	1.00	1.00	1.00	.0
623 OTHER PESTIC - NON-SYNTH	.60	.60	1.00	1.00	1.00	1.00	.0
651 UNPAVED CITY/COUNTY ROAD	1.00	1.00	1.00	1.00	1.00	1.00	.0
753 HDD - HOT STABILIZED [CAL	.79	.80	.63	.65	.33	.85	.2
757 HDD - TIRE WEAR	1.00	1.00	1.00	1.00	.66	1.00	.0

TABLE 5
(Continued)

CONTROL CATEGORY	TOG	ROG	NOX	SOX	PM	CO	METH
761 MCY - COLD START	.50	.50	.50	1.00	1.00	.50	.0
762 MCY - HOT START	.50	.50	.50	1.00	1.00	.50	.0
763 MCY - HOT STABILIZED	.50	.50	.50	1.00	.50	.50	.0
764 MCY - HOT SOAK EVAP.	.37	.37	1.00	1.00	1.00	1.00	.0
765 MCY - DIURNAL EVAP.	.38	.38	1.00	1.00	1.00	1.00	.0
766 MCY - CRANKCASE BLOWBY	1.00	1.00	1.00	1.00	1.00	1.00	.0
767 MCY - TIRE WEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
801 NON-FARM EQUIPMENT (GASOL	1.00	1.00	1.00	1.00	1.00	1.00	.0
802 FARM EQUIPMENT (DIESEL)	.00	.00	.00	.00	.00	.00	.0
803 LAWN & GARDEN EQUIPMENT (	.26	.26	1.13	1.00	1.00	.33	.0
804 OFF-ROAD MOTORCYCLES	.50	.50	.50	1.00	.50	.50	.0
805 PLEASURE CRAFT (BOATS)	.40	.40	.40	1.00	1.00	.40	.0
806 RAILROAD LINE HAUL OPERAT	.07	.07	.07	.07	.07	.07	.0
807 COMM./CIVIL PISTON AIRCRA	1.00	1.00	1.00	1.00	1.00	1.00	.0
808 COMM. JET AIRCRAFT	.45	.45	.39	.71	.67	.44	.0
809 FARMEQUIPMENT (GASOLINE)	.00	.00	.00	.00	.00	.00	.0
811 LDA - NCAT - COLD START	1.00	1.00	1.00	1.00	1.00	1.00	.0
812 LDA - NCAT - HOT START	1.00	1.00	1.00	1.00	1.00	1.00	.0
813 LDA - NCAT - HOT STABILIZ	1.00	1.00	1.00	1.00	1.00	1.00	.0
814 LDA - NCAT - HOT SOAK	1.00	1.00	1.00	1.00	1.00	1.00	.0
815 LDA - NCAT - DIURNAL	1.00	1.00	1.00	1.00	1.00	1.00	.0
816 LDA - NCAT - CRANKCASE	1.00	1.00	1.00	1.00	1.00	1.00	.0
817 LDA - NCAT - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
821 LDA - CAT - COLD START	.37	.37	.28	1.00	1.00	.38	.2
822 LDA - CAT - HOT START	.37	.37	.28	1.00	1.00	.38	.2
823 LDA - CAT - HOT STABILIZE	.37	.37	.28	.58	.79	.38	.2
824 LDA - CAT - HOT SOAK	.62	.62	1.00	1.00	1.00	1.00	.3
825 LDA - CAT - DIURNAL	.65	.65	1.00	1.00	1.00	1.00	.3
827 LDA - CAT - TIREWEAR	1.00	1.00	1.00	1.00	.98	1.00	.0
831 LDA - DSL - COLD START	.80	.80	1.00	1.00	1.00	1.00	.0
832 LDA - DSL - HOT START	.80	.80	1.00	1.00	1.00	1.00	.0
833 LDA - DSL - HOT STABILIZE	.80	.80	1.00	1.00	.66	1.00	.0
837 LDA - DSL - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
841 LMDT - NCAT - COLD START	1.00	1.00	1.00	1.00	1.00	1.00	.0
842 LMDT - NCAT - HOT START	1.00	1.00	1.00	1.00	1.00	1.00	.0
843 LMDT - NCAT - HOT STABILI	1.00	1.00	1.00	1.00	1.00	1.00	.0
844 LMDT - NCAT - HOT SOAK	1.00	1.00	1.00	1.00	1.00	1.00	.0
845 LMDT - NCAT - DIURNAL	1.00	1.00	1.00	1.00	1.00	1.00	.0
846 LMDT - NCAT - CRANKCASE	1.00	1.00	1.00	1.00	1.00	1.00	.0
847 LMDT - NCAT - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
851 LMDT - CAT - COLD START	.49	.49	.57	1.00	1.00	.51	.2
852 LMDT - CAT - HOT START	.49	.49	.57	1.00	1.00	.51	.2
853 LMDT - CAT - HOT STABIL	.50	.50	.61	.77	.98	.51	.2
854 LMDT - CAT - HOT SOAK	.77	.77	1.00	1.00	1.00	1.00	.2
855 LMDT - CAT - DIURNAL	.80	.80	1.00	1.00	1.00	1.00	.2
857 LMDT - CAT - TIREWEAR	1.00	1.00	1.00	1.00	.98	1.00	.0
861 LMDT - DSL - COLD START	.80	.80	1.00	1.00	1.00	1.00	.0
862 LMDT - DSL - HOT START	.80	.80	1.00	1.00	1.00	1.00	.0
863 LMDT - DSL - HOT STABILIZ	.80	.80	1.00	1.00	.66	1.00	.0
867 LMDT - DSL - TIREWEAR	1.00	1.00	1.00	1.00	1.00	1.00	.0
873 HDT - NCAT - HOT STABILIZ	.78	.78	.74	.81	.66	.79	.0

TABLE 6
Emissions by Source Category for ROG ONLY Control Scenario

CODE	SOURCE NAME	TOG	ROG	CO	NOX	SOX	TSP
100	FUEL COMBUSTION	0.00	0.00	0.00	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.01	0.04	0.04	0.01
120	OIL AND GAS PRODUCTION	13.63	1.66	5.86	15.71	0.29	0.35
130	PETROLEUM REFINING	7.54	3.30	11.20	28.10	3.42	3.87
140	OTHER MANUFACTURING/INDUSTRIAL	13.06	2.20	19.06	36.44	2.07	1.70
150	ELECTRIC UTILITIES	7.68	2.85	10.91	67.51	9.14	2.65
160	OTHER SERVICES AND COMMERCE	8.89	2.27	18.09	24.73	4.79	1.70
170	RESIDENTIAL	1.30	0.48	5.29	18.87	0.17	0.77
199	OTHER	6.38	4.40	38.61	34.67	8.48	4.87
200	WASTE BURNING	0.00	0.00	0.00	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.11	0.05	0.60	0.00	0.00	0.11
220	RANGE MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.01	0.01	0.00	0.00
299	OTHER	0.55	0.36	1.01	0.48	0.37	0.33
300	SOLVENT USE	0.00	0.00	0.00	0.00	0.00	0.00
310	DRY CLEANING	2.19	0.39	0.00	0.00	0.00	0.00
320	DEGREASING	10.20	6.75	0.00	0.00	0.00	0.00
330	ARCHITECTURAL COATING	26.71	26.00	0.00	0.00	0.00	0.00
340	OTHER SURFACE COATING	64.55	63.19	0.00	0.03	0.00	1.41
350	ASPHALT PAVING	2.89	2.89	0.00	0.00	0.00	0.00
360	PRINTING	2.00	1.95	0.00	0.05	0.00	0.00
370	DOMESTIC	40.15	34.43	0.00	0.00	0.00	0.00
380	INDUSTRIAL SOLVENT USE	10.29	9.80	0.00	0.00	0.00	0.00
399	OTHER	1.15	1.07	0.00	0.00	0.00	0.00
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	10.48	6.04	0.00	0.01	0.68	0.01
420	PETROLEUM REFINING	6.18	4.81	1.54	6.36	21.88	3.58
430	PETROLEUM MARKETING	79.12	12.98	0.00	0.00	0.00	0.01
499	OTHER	0.68	0.55	0.04	0.00	0.00	0.02
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00
510	CHEMICAL	6.43	5.07	0.85	2.06	3.93	1.53
520	FOOD AND AGRICULTURAL	2.02	1.76	0.00	0.00	0.00	3.81
560	MINERAL PROCESSES	0.56	0.40	0.48	4.31	2.41	6.52
570	METAL PROCESSES	0.37	0.26	0.24	0.04	0.11	1.11
580	WOOD AND PAPER	0.09	0.09	0.00	0.00	0.00	0.19
599	OTHER	5.58	3.96	0.00	0.00	0.00	0.13

TABLE 6
(Continued)

CODE	SOURCE NAME	TOG	ROG	CO	NOX	SOX	TSP
600	MISC PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00
610	PESTICIDE APPLICATION	7.55	6.50	0.00	0.00	0.00	0.00
620	FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00	5.41
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	517.79
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00	0.00	0.00	901.55
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00	0.00	0.00	125.26
660	UNPLANNED FIRES	0.24	0.15	2.40	0.05	0.00	0.57
680	WASTE DISPOSAL	46.22	1.28	0.00	0.00	0.00	0.00
685	NATURAL SOURCES	0.00	0.00	0.00	0.00	0.00	0.00
699	OTHER	19.29	13.60	0.85	4.41	1.18	5.73
700	ON ROAD VEHICLES	0.00	0.00	0.00	0.00	0.00	0.00
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00	0.00	0.00	0.00
799	OTHER	200.34	171.77	1281.57	306.95	12.56	70.56
800	OTHER MOBILE	0.00	0.00	0.00	0.00	0.00	0.00
810	OFF ROAD VEHICLES	78.34	65.85	263.56	22.21	2.60	1.62
820	TRAINS	11.95	10.96	19.14	41.22	4.47	2.48
830	SHIPS	1.31	1.20	2.84	33.88	26.22	2.90
850	AIRCRAFT - GOVERNMENT	0.12	0.12	0.33	0.14	0.03	0.38
860	AIRCRAFT - OTHER	29.87	28.71	117.28	17.33	1.51	1.06
870	MOBILE EQUIPMENT	35.10	30.19	262.10	116.01	5.15	12.28
880	UTILITY EQUIPMENT	26.65	22.31	241.43	3.75	0.35	0.59
891	SEEPS/BIOGENIC	0.00	0.00	0.00	0.00	0.00	0.00
892	CHANNEL SHIPPING	0.00	0.00	0.00	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.01	0.00	0.07	0.03	0.00	0.00
TOTAL		787.78	552.57	2305.36	785.39	111.84	1682.87

TABLE 6
(Continued)

CODE	SOURCE NAME	OLE	PAR	TOL	XYL	FORM
100	FUEL COMBUSTION	0.00	0.00	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.00	0.00	0.00
120	OIL AND GAS PRODUCTION	0.18	1.18	0.01	0.02	0.06
130	PETROLEUM REFINING	0.51	2.43	0.04	0.01	0.19
140	OTHER MANUFACTURING/INDUSTRIAL	0.25	1.41	0.08	0.04	0.08
150	ELECTRIC UTILITIES	0.07	2.24	0.12	0.02	0.26
160	OTHER SERVICES AND COMMERCE	0.23	1.21	0.12	0.05	0.08
170	RESIDENTIAL	0.00	0.39	0.03	0.00	0.06
199	OTHER	0.17	3.29	0.50	0.01	0.03
200	WASTE BURNING	0.00	0.00	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.00	0.02	0.00	0.00	0.00
220	RANGE MANAGEMENT	0.00	0.00	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.00	0.00	0.00
299	OTHER	0.07	0.27	0.00	0.00	0.02
300	SOLVENT USE	0.00	0.00	0.00	0.00	0.00
310	DRY CLEANING	0.00	0.39	0.00	0.00	0.00
320	DEGREASING	0.00	6.56	0.08	0.00	0.00
330	ARCHITECTURAL COATING	0.00	21.31	2.40	0.73	0.00
340	OTHER SURFACE COATING	0.00	51.96	5.78	3.32	0.00
350	ASPHALT PAVING	0.02	1.99	0.27	0.62	0.00
360	PRINTING	0.00	1.61	0.07	0.06	0.00
370	DOMESTIC	0.00	34.36	0.00	0.00	0.07
380	INDUSTRIAL SOLVENT USE	0.00	8.74	0.43	0.30	0.00
399	OTHER	0.00	0.88	0.09	0.05	0.00
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	0.02	5.87	0.03	0.00	0.00
420	PETROLEUM REFINING	0.01	4.73	0.04	0.01	0.00
430	PETROLEUM MARKETING	0.14	9.95	0.11	0.03	0.02
499	OTHER	0.00	0.52	0.01	0.00	0.00
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00	0.00	0.00
510	CHEMICAL	0.06	2.84	1.57	0.22	0.11
520	FOOD AND AGRICULTURAL	0.00	1.65	0.08	0.00	0.00
560	MINERAL PROCESSES	0.00	0.33	0.05	0.00	0.00
570	METAL PROCESSES	0.00	0.21	0.03	0.00	0.00
580	WOOD AND PAPER	0.00	0.09	0.00	0.00	0.00
599	OTHER	0.00	3.26	0.51	0.00	0.00

TABLE 6
(Continued)

CODE	SOURCE NAME	ALD2	ETH	MEOH
600	MISC PROCESSES	0.00	0.00	0.00
610	PESTICIDE APPLICATION	0.30	0.00	0.00
620	FARMING OPERATIONS	0.00	0.00	0.00
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00
660	UNPLANNED FIRES	0.00	0.06	0.00
680	WASTE DISPOSAL	0.00	0.02	0.00
685	NATURAL SOURCES	0.00	0.00	0.00
699	OTHER	0.00	0.65	0.00
700	ON ROAD VEHICLES	0.00	0.00	0.00
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00
799	OTHER	6.99	15.15	25.24
800	OTHER MOBILE	0.00	0.00	0.00
810	OFF ROAD VEHICLES	5.58	9.09	1.37
820	TRAINS	0.59	1.08	2.23
830	SHIPS	0.07	0.15	0.00
850	AIRCRAFT - GOVERNMENT	0.00	0.00	0.00
860	AIRCRAFT - OTHER	0.90	0.24	0.00
870	MOBILE EQUIPMENT	2.46	4.11	0.00
880	UTILITY EQUIPMENT	1.95	3.16	0.00
891	SEEPS/BIOGENIC	0.00	0.00	0.00
892	CHANNEL SHIPPING	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.00	0.00	0.00
TOTAL		21.67	35.72	33.55

TABLE 7
Emissions by Source Category for OZONE-OPTIMAL Control Scenario

CODE	SOURCE NAME	TOG	ROG	CO	NOX	SOX	TSP
100	FUEL COMBUSTION	0.00	0.00	0.00	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.01	0.03	0.03	0.00
120	OIL AND GAS PRODUCTION	11.51	1.44	4.49	13.00	0.26	0.32
130	PETROLEUM REFINING	6.07	2.62	9.07	21.37	2.60	3.54
140	OTHER MANUFACTURING/INDUSTRIAL	11.15	1.97	17.03	41.62	1.88	1.62
150	ELECTRIC UTILITIES	7.68	2.85	10.91	67.55	9.14	2.65
160	OTHER SERVICES AND COMMERCE	8.02	2.33	17.36	26.59	4.24	1.48
170	RESIDENTIAL	1.32	0.49	5.42	22.61	0.17	0.85
199	OTHER	6.26	4.34	35.79	35.11	8.35	4.46
200	WASTE BURNING	0.00	0.00	0.00	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.12	0.05	0.67	0.00	0.00	0.17
220	RANGE MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.01	0.03	0.00	0.00
299	OTHER	0.91	0.60	1.56	0.79	0.62	0.55
300	SOLVENT USE	0.00	0.00	0.00	0.00	0.00	0.00
310	DRY CLEANING	1.94	0.14	0.00	0.00	0.00	0.00
320	DEGREASING	10.20	6.75	0.00	0.00	0.00	0.00
330	ARCHITECTURAL COATING	20.23	19.70	0.00	0.00	0.00	0.00
340	OTHER SURFACE COATING	60.96	59.66	0.00	0.02	0.00	0.65
350	ASPHALT PAVING	3.23	3.23	0.00	0.00	0.00	0.00
360	PRINTING	2.00	1.95	0.00	0.05	0.00	0.00
370	DOMESTIC	27.11	23.18	0.00	0.00	0.00	0.00
380	INDUSTRIAL SOLVENT USE	10.24	9.76	0.00	0.00	0.00	0.00
399	OTHER	1.31	1.22	0.00	0.00	0.00	0.00
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	14.46	7.90	0.00	0.03	0.77	0.02
420	PETROLEUM REFINING	7.74	5.87	1.51	4.60	15.58	3.14
430	PETROLEUM MARKETING	92.53	16.33	0.00	0.01	0.00	0.04
499	OTHER	0.67	0.54	0.04	0.00	0.00	0.04
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00
510	CHEMICAL	3.77	2.93	0.63	1.61	4.17	0.85
520	FOOD AND AGRICULTURAL	2.31	2.02	0.00	0.00	0.00	5.93
560	MINERAL PROCESSES	0.22	0.15	0.51	3.60	2.23	8.96
570	METAL PROCESSES	0.42	0.30	0.27	0.13	0.13	1.72
580	WOOD AND PAPER	0.11	0.10	0.00	0.00	0.00	0.30
599	OTHER	5.82	4.13	0.00	0.00	0.00	0.17

TABLE 7
(Continued)

CODE	SOURCE NAME	TOG	ROG	CO	NOX	SOX	TSP
600	MISC PROCESSES						
610	PESTICIDE APPLICATION	0.00	0.00	0.00	0.00	0.00	0.00
620	FARMING OPERATIONS	6.62	5.71	0.00	0.00	0.00	0.00
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	8.40
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00	0.00	0.00	517.79
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00	0.00	0.00	1400.27
660	UNPLANNED FIRES	0.00	0.00	0.00	0.00	0.00	136.93
680	WASTE DISPOSAL	0.28	0.17	2.67	0.17	0.00	0.89
685	NATURAL SOURCES	183.51	4.15	0.00	0.00	0.00	0.00
699	OTHER	0.00	0.00	0.00	0.00	0.00	0.00
700	ON ROAD VEHICLES	54.76	38.76	2.81	14.05	3.22	20.87
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00	0.00	0.00	0.00
799	OTHER	0.00	0.00	0.00	0.00	0.00	0.00
800	OTHER MOBILE	213.61	178.93	1753.16	419.70	9.22	50.45
810	OFF ROAD VEHICLES	0.00	0.00	0.00	0.00	0.00	0.00
820	TRAINS	36.17	30.50	121.05	16.32	2.59	1.55
830	SHIPS	6.06	5.56	7.75	10.47	1.04	0.55
850	AIRCRAFT - GOVERNMENT	1.31	1.20	2.84	33.88	26.22	2.90
860	AIRCRAFT - OTHER	0.14	0.13	0.37	0.50	0.03	0.59
870	MOBILE EQUIPMENT	15.06	14.34	96.23	8.23	1.10	0.82
880	UTILITY EQUIPMENT	34.05	29.28	250.70	113.27	4.90	11.94
891	SEEPS/BIOGENIC	6.93	5.80	79.67	4.24	0.35	0.59
892	CHANNEL SHIPPING	0.00	0.00	0.00	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.00	0.00	0.00	0.00	0.00	0.00
		0.04	0.00	0.23	0.11	0.00	0.01
TOTAL		876.88	497.07	2422.76	859.70	98.84	2192.03

TABLE 7
(Continued)

CODE	SOURCE NAME	OLE	PAR	TOL	XYL	FORM
100	FUEL COMBUSTION	0.00	0.00	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.00	0.00	0.00
120	OIL AND GAS PRODUCTION	0.15	1.00	0.01	0.01	0.05
130	PETROLEUM REFINING	0.40	1.91	0.04	0.01	0.15
140	OTHER MANUFACTURING/INDUSTRIAL	0.22	1.24	0.08	0.04	0.08
150	ELECTRIC UTILITIES	0.07	2.24	0.12	0.02	0.26
160	OTHER SERVICES AND COMMERCE	0.22	1.16	0.12	0.05	0.08
170	RESIDENTIAL	0.00	0.40	0.03	0.00	0.06
199	OTHER	0.19	3.21	0.49	0.01	0.03
200	WASTE BURNING	0.00	0.00	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.00	0.02	0.00	0.00	0.00
220	RANGE MANAGEMENT	0.00	0.00	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.00	0.00	0.00
299	OTHER	0.11	0.45	0.00	0.00	0.03
300	SOLVENT USE	0.00	0.00	0.00	0.00	0.00
310	DRY CLEANING	0.00	0.14	0.00	0.00	0.00
320	DEGREASING	0.00	6.56	0.08	0.00	0.00
330	ARCHITECTURAL COATING	0.00	16.14	1.82	0.55	0.00
340	OTHER SURFACE COATING	0.00	49.00	5.51	3.13	0.00
350	ASPHALT PAVING	0.02	2.22	0.29	0.69	0.00
360	PRINTING	0.00	1.61	0.07	0.06	0.00
370	DOMESTIC	0.00	23.14	0.00	0.00	0.04
380	INDUSTRIAL SOLVENT USE	0.00	8.70	0.43	0.30	0.00
399	OTHER	0.00	1.00	0.11	0.05	0.00
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	0.03	7.66	0.04	0.01	0.00
420	PETROLEUM REFINING	0.01	5.75	0.05	0.01	0.00
430	PETROLEUM MARKETING	0.17	12.49	0.19	0.04	0.03
499	OTHER	0.00	0.52	0.01	0.00	0.00
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00	0.00	0.00
510	CHEMICAL	0.01	1.77	0.78	0.18	0.03
520	FOOD AND AGRICULTURAL	0.00	1.89	0.09	0.00	0.00
560	MINERAL PROCESSES	0.00	0.13	0.02	0.00	0.00
570	METAL PROCESSES	0.00	0.25	0.04	0.00	0.00
580	WOOD AND PAPER	0.00	0.10	0.00	0.00	0.00
599	OTHER	0.00	3.40	0.53	0.00	0.00

TABLE 7
(Continued)

CODE	SOURCE NAME	OLE	PAR	TOL	XYL	FORM
600	MISC PROCESSES	0.00	0.00	0.00	0.00	0.00
610	PESTICIDE APPLICATION	0.00	3.91	0.38	1.14	0.00
620	FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00	0.00	0.00
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00	0.00	0.00
660	UNPLANNED FIRES	0.01	0.08	0.01	0.00	0.00
680	WASTE DISPOSAL	0.04	3.61	0.26	0.22	0.00
685	NATURAL SOURCES	0.00	0.00	0.00	0.00	0.00
699	OTHER	0.00	31.96	4.94	0.00	0.00
700	ON ROAD VEHICLES	0.00	0.00	0.00	0.00	0.00
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00	0.00	0.00
799	OTHER	3.66	86.53	13.40	17.52	2.04
800	OTHER MOBILE	0.00	0.00	0.00	0.00	0.00
810	OFF ROAD VEHICLES	2.03	13.64	4.02	1.73	0.47
820	TRAINS	0.06	1.42	0.04	0.01	0.07
830	SHIPS	0.04	0.89	0.03	0.01	0.03
850	AIRCRAFT - GOVERNMENT	0.01	0.07	0.00	0.04	0.01
860	AIRCRAFT - OTHER	0.74	7.29	0.67	4.20	0.69
870	MOBILE EQUIPMENT	1.82	15.89	3.32	1.40	0.47
880	UTILITY EQUIPMENT	0.44	2.66	0.89	0.39	0.09
891	SEEPS/BIOGENIC	0.00	0.00	0.00	0.00	0.00
892	CHANNEL SHIPPING	0.00	0.00	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.00	0.00	0.00	0.00	0.00
TOTAL		10.49	322.05	38.93	31.84	4.71

TABLE 7
(Continued)

CODE	SOURCE NAME	ALD2	ETH	MEOH
100	FUEL COMBUSTION	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.00
120	OIL AND GAS PRODUCTION	0.06	0.09	0.07
130	PETROLEUM REFINING	0.03	0.07	0.00
140	OTHER MANUFACTURING/INDUSTRIAL	0.09	0.21	0.01
150	ELECTRIC UTILITIES	0.01	0.13	0.00
160	OTHER SERVICES AND COMMERCE	0.09	0.26	0.35
170	RESIDENTIAL	0.00	0.01	0.00
199	OTHER	0.02	0.39	0.00
200	WASTE BURNING	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.00	0.02	0.00
220	RANGE MANAGEMENT	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.00
299	OTHER	0.00	0.00	0.00
300	SOLVENT USE	0.00	0.00	0.00
310	DRY CLEANING	0.00	0.00	0.00
320	DEGREASING	0.00	0.08	0.02
330	ARCHITECTURAL COATING	0.84	0.00	0.34
340	OTHER SURFACE COATING	0.57	0.00	1.44
350	ASPHALT PAVING	0.00	0.00	0.00
360	PRINTING	0.18	0.00	0.03
370	DOMESTIC	0.00	0.00	0.00
380	INDUSTRIAL SOLVENT USE	0.02	0.11	0.20
399	OTHER	0.00	0.03	0.03
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	0.00	0.16	0.00
420	PETROLEUM REFINING	0.03	0.02	0.00
430	PETROLEUM MARKETING	0.66	0.04	2.72
499	OTHER	0.00	0.00	0.00
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00
510	CHEMICAL	0.04	0.11	0.00
520	FOOD AND AGRICULTURAL	0.00	0.03	0.00
560	MINERAL PROCESSES	0.00	0.01	0.00
570	METAL PROCESSES	0.00	0.01	0.00
580	WOOD AND PAPER	0.00	0.00	0.00
599	OTHER	0.00	0.20	0.00

TABLE 7
(Continued)

CODE	SOURCE NAME	ALD2	ETH	MEOH
600	MISC PROCESSES	0.00	0.00	0.00
610	PESTICIDE APPLICATION	0.27	0.00	0.00
620	FARMING OPERATIONS	0.00	0.00	0.00
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00
660	UNPLANNED FIRES	0.00	0.07	0.00
680	WASTE DISPOSAL	0.00	0.02	0.00
685	NATURAL SOURCES	0.00	0.00	0.00
699	OTHER	0.00	1.86	0.00
700	ON ROAD VEHICLES	0.00	0.00	0.00
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00
799	OTHER	5.72	13.91	36.15
800	OTHER MOBILE	0.00	0.00	0.00
810	OFF ROAD VEHICLES	2.43	3.96	2.20
820	TRAINS	0.13	0.24	3.59
830	SHIPS	0.07	0.15	0.00
850	AIRCRAFT - GOVERNMENT	0.00	0.00	0.00
860	AIRCRAFT - OTHER	0.50	0.24	0.00
870	MOBILE EQUIPMENT	2.38	3.99	0.00
880	UTILITY EQUIPMENT	0.51	0.82	0.00
891	SEEPS/BIOGENIC	0.00	0.00	0.00
892	CHANNEL SHIPPING	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.00	0.00	0.00
TOTAL		14.65	27.25	47.15

TABLE 8

Emissions by Source Category for REALISTIC OZONE-OPTIMAL Control Scenario

CODE	SOURCE NAME	TOG	ROG	CO	NOX	SOX	TSP
100	FUEL COMBUSTION	0.00	0.00	0.00	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.01	0.03	0.03	0.00
120	OIL AND GAS PRODUCTION	11.48	1.42	4.35	12.55	0.20	0.30
130	PETROLEUM REFINING	6.07	2.61	9.07	21.35	2.60	3.55
140	OTHER MANUFACTURING/INDUSTRIAL	11.15	1.97	17.03	41.55	1.82	1.88
150	ELECTRIC UTILITIES	7.68	2.85	10.91	67.55	9.14	2.65
160	OTHER SERVICES AND COMMERCE	7.88	2.20	17.34	24.68	3.57	1.45
170	RESIDENTIAL	1.32	0.49	5.42	22.61	0.17	0.93
199	OTHER	6.26	4.34	35.79	35.11	8.35	4.49
200	WASTE BURNING	0.00	0.00	0.00	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.12	0.05	0.67	0.00	0.00	0.23
220	RANGE MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.01	0.03	0.00	0.01
299	OTHER	0.91	0.60	1.56	0.79	0.62	0.57
300	SOLVENT USE	0.00	0.00	0.00	0.00	0.00	0.00
310	DRY CLEANING	1.94	0.14	0.00	0.00	0.00	0.00
320	DEGREASING	10.20	6.75	0.00	0.00	0.00	0.00
330	ARCHITECTURAL COATING	20.23	19.70	0.00	0.00	0.00	0.00
340	OTHER SURFACE COATING	60.96	59.66	0.00	0.02	0.00	0.69
350	ASPHALT PAVING	3.23	3.23	0.00	0.00	0.00	0.00
360	PRINTING	2.00	1.95	0.00	0.05	0.00	0.00
370	DOMESTIC	27.11	23.18	0.00	0.00	0.00	0.00
380	INDUSTRIAL SOLVENT USE	10.24	9.76	0.00	0.00	0.00	0.00
399	OTHER	1.31	1.22	0.00	0.00	0.00	0.00
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	14.46	7.90	0.00	0.03	0.77	0.03
420	PETROLEUM REFINING	7.74	5.87	1.51	4.60	15.58	3.63
430	PETROLEUM MARKETING	92.53	16.33	0.00	0.01	0.00	0.04
499	OTHER	0.67	0.54	0.04	0.00	0.00	0.05
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00
510	CHEMICAL	3.77	2.93	0.63	1.61	4.17	0.87
520	FOOD AND AGRICULTURAL	2.31	2.02	0.00	0.00	0.00	7.96
560	MINERAL PROCESSES	0.22	0.15	0.51	3.60	2.23	11.73
570	METAL PROCESSES	0.42	0.30	0.27	0.13	0.13	2.31
580	WOOD AND PAPER	0.11	0.10	0.00	0.00	0.00	0.41
599	OTHER	5.82	4.13	0.00	0.00	0.00	0.22

TABLE 8
(Continued)

CODE	SOURCE NAME	TOG	ROG	CO	NOX	SOX	TSP
600	MISC PROCESSES	0.00	0.00	0.00	0.00	0.00	0.00
610	PESTICIDE APPLICATION	6.62	5.71	0.00	0.00	0.00	0.00
620	FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00	11.28
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00	517.79
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00	0.00	0.00	1879.82
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00	0.00	0.00	148.15
660	UNPLANNED FIRES	0.28	0.17	2.67	0.17	0.00	1.20
680	WASTE DISPOSAL	183.51	4.15	0.00	0.00	0.00	0.00
685	NATURAL SOURCES	0.00	0.00	0.00	0.00	0.00	0.00
699	OTHER	54.76	38.76	2.81	14.05	3.22	20.88
700	ON ROAD VEHICLES	0.00	0.00	0.00	0.00	0.00	0.00
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00	0.00	0.00	0.00
799	OTHER	191.64	161.33	1648.76	237.91	7.97	29.63
800	OTHER MOBILE	0.00	0.00	0.00	0.00	0.00	0.00
810	OFF ROAD VEHICLES	35.22	29.71	116.18	16.07	2.59	1.52
820	TRAINS	4.39	4.03	5.62	7.51	0.75	0.40
830	SHIPS	1.31	1.20	2.84	33.88	26.22	2.90
850	AIRCRAFT - GOVERNMENT	0.14	0.13	0.37	0.50	0.03	0.80
860	AIRCRAFT - OTHER	15.06	14.34	96.23	8.23	1.10	0.85
870	MOBILE EQUIPMENT	34.05	29.28	250.70	113.27	4.90	11.94
880	UTILITY EQUIPMENT	6.93	5.80	79.67	4.24	0.35	0.59
891	SEEPS/BIOGENIC	0.00	0.00	0.00	0.00	0.00	0.00
892	CHANNEL SHIPPING	0.00	0.00	0.00	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.04	0.00	0.23	0.11	0.00	0.01
TOTAL		852.12	476.99	2311.20	672.26	96.50	2671.74

TABLE 8
(Continued)

CODE	SOURCE NAME	OLE	PAR	TOL	XYL	FORM
100	FUEL COMBUSTION	0.00	0.00	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.00	0.00	0.00
120	OIL AND GAS PRODUCTION	0.15	1.00	0.01	0.01	0.05
130	PETROLEUM REFINING	0.40	1.91	0.04	0.01	0.15
140	OTHER MANUFACTURING/INDUSTRIAL	0.22	1.24	0.08	0.04	0.08
150	ELECTRIC UTILITIES	0.07	2.24	0.12	0.02	0.26
160	OTHER SERVICES AND COMMERCE	0.22	1.13	0.12	0.05	0.08
170	RESIDENTIAL	0.00	0.40	0.03	0.00	0.06
199	OTHER	0.19	3.21	0.49	0.01	0.03
200	WASTE BURNING	0.00	0.00	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.00	0.02	0.00	0.00	0.00
220	RANGE MANAGEMENT	0.00	0.00	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.00	0.00	0.00
299	OTHER	0.11	0.45	0.00	0.00	0.03
300	SOLVENT USE	0.00	0.00	0.00	0.00	0.00
310	DRY CLEANING	0.00	0.14	0.00	0.00	0.00
320	DEGREASING	0.00	6.56	0.08	0.00	0.00
330	ARCHITECTURAL COATING	0.00	16.14	1.82	0.55	0.00
340	OTHER SURFACE COATING	0.00	49.00	5.51	3.13	0.00
350	ASPHALT PAVING	0.02	2.22	0.29	0.69	0.00
360	PRINTING	0.00	1.61	0.07	0.06	0.00
370	DOMESTIC	0.00	23.14	0.00	0.00	0.04
380	INDUSTRIAL SOLVENT USE	0.00	8.70	0.43	0.30	0.00
399	OTHER	0.00	1.00	0.11	0.05	0.00
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	0.03	7.66	0.04	0.01	0.00
420	PETROLEUM REFINING	0.01	5.75	0.05	0.01	0.00
430	PETROLEUM MARKETING	0.17	12.49	0.19	0.04	0.03
499	OTHER	0.00	0.52	0.01	0.00	0.00
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00	0.00	0.00
510	CHEMICAL	0.01	1.77	0.78	0.18	0.03
520	FOOD AND AGRICULTURAL	0.00	1.89	0.09	0.00	0.00
560	MINERAL PROCESSES	0.00	0.13	0.02	0.00	0.00
570	METAL PROCESSES	0.00	0.25	0.04	0.00	0.00
580	WOOD AND PAPER	0.00	0.10	0.00	0.00	0.00
599	OTHER	0.00	3.40	0.53	0.00	0.00

TABLE 8
(Continued)

CODE	SOURCE NAME	OLE	PAR	TOL	XYL	FORM
600	MISC PROCESSES	0.00	0.00	0.00	0.00	0.00
610	PESTICIDE APPLICATION	0.00	3.91	0.38	1.14	0.00
620	FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00	0.00	0.00
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00	0.00	0.00
660	UNPLANNED FIRES	0.01	0.08	0.01	0.00	0.00
680	WASTE DISPOSAL	0.04	3.61	0.26	0.22	0.00
685	NATURAL SOURCES	0.00	0.00	0.00	0.00	0.00
699	OTHER	0.00	31.96	4.94	0.00	0.00
700	ON ROAD VEHICLES	0.00	0.00	0.00	0.00	0.00
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00	0.00	0.00
799	OTHER	3.31	78.76	11.95	15.54	1.82
800	OTHER MOBILE	0.00	0.00	0.00	0.00	0.00
810	OFF ROAD VEHICLES	2.02	13.56	3.99	1.72	0.46
820	TRAINS	0.04	1.02	0.03	0.01	0.05
830	SHIPS	0.04	0.89	0.03	0.01	0.03
850	AIRCRAFT - GOVERNMENT	0.01	0.07	0.00	0.04	0.01
860	AIRCRAFT - OTHER	0.74	7.29	0.67	4.20	0.69
870	MOBILE EQUIPMENT	1.82	15.89	3.32	1.40	0.47
880	UTILITY EQUIPMENT	0.44	2.66	0.89	0.39	0.09
891	SEEPS/BIOGENIC	0.00	0.00	0.00	0.00	0.00
892	CHANNEL SHIPPING	0.00	0.00	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.00	0.00	0.00	0.00	0.00
TOTAL		10.10	313.76	37.44	29.85	4.46

TABLE 8
(Continued)

CODE	SOURCE NAME	ALD2	ETH	MEOH
100	FUEL COMBUSTION	0.00	0.00	0.00
110	AGRICULTURAL	0.00	0.00	0.00
120	OIL AND GAS PRODUCTION	0.06	0.09	0.05
130	PETROLEUM REFINING	0.03	0.07	0.00
140	OTHER MANUFACTURING/INDUSTRIAL	0.09	0.21	0.01
150	ELECTRIC UTILITIES	0.01	0.13	0.00
160	OTHER SERVICES AND COMMERCE	0.09	0.25	0.25
170	RESIDENTIAL	0.00	0.01	0.00
199	OTHER	0.02	0.39	0.00
200	WASTE BURNING	0.00	0.00	0.00
210	AGRICULTURAL DEBRIS	0.00	0.02	0.00
220	RANGE MANAGEMENT	0.00	0.00	0.00
230	FOREST MANAGEMENT	0.00	0.00	0.00
240	INCINERATION	0.00	0.00	0.00
299	OTHER	0.00	0.00	0.00
300	SOLVENT USE	0.00	0.00	0.00
310	DRY CLEANING	0.00	0.00	0.00
320	DEGREASING	0.00	0.08	0.02
330	ARCHITECTURAL COATING	0.84	0.00	0.34
340	OTHER SURFACE COATING	0.57	0.00	1.44
350	ASPHALT PAVING	0.00	0.00	0.00
360	PRINTING	0.18	0.00	0.03
370	DOMESTIC	0.00	0.00	0.00
380	INDUSTRIAL SOLVENT USE	0.02	0.11	0.20
399	OTHER	0.00	0.03	0.03
400	PETROLEUM PROCESS, STORAGE & TRANSFER	0.00	0.00	0.00
410	OIL AND GAS EXTRACTION	0.00	0.16	0.00
420	PETROLEUM REFINING	0.03	0.02	0.00
430	PETROLEUM MARKETING	0.66	0.04	2.72
499	OTHER	0.00	0.00	0.00
500	INDUSTRIAL PROCESSES	0.00	0.00	0.00
510	CHEMICAL	0.04	0.11	0.00
520	FOOD AND AGRICULTURAL	0.00	0.03	0.00
560	MINERAL PROCESSES	0.00	0.01	0.00
570	METAL PROCESSES	0.00	0.01	0.00
580	WOOD AND PAPER	0.00	0.00	0.00
599	OTHER	0.00	0.20	0.00

TABLE 8
(Continued)

CODE	SOURCE NAME	ALD2	ETH	MEOH
600	MISC PROCESSES	0.00	0.00	0.00
610	PESTICIDE APPLICATION	0.27	0.00	0.00
620	FARMING OPERATIONS	0.00	0.00	0.00
630	CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00
640	ENTRAINED ROAD DUST - PAVED	0.00	0.00	0.00
650	ENTRAINED ROAD DUST - UNPAVED	0.00	0.00	0.00
660	UNPLANNED FIRES	0.00	0.07	0.00
680	WASTE DISPOSAL	0.00	0.02	0.00
685	NATURAL SOURCES	0.00	0.00	0.00
699	OTHER	0.00	1.86	0.00
700	ON ROAD VEHICLES	0.00	0.00	0.00
710	LIGHT DUTY PASSENGER	0.00	0.00	0.00
720	LIGHT AND MEDIUM DUTY TRUCKS	0.00	0.00	0.00
730	HEAVY DUTY GAS TRUCKS	0.00	0.00	0.00
740	HEAVY DUTY DIESEL TRUCKS	0.00	0.00	0.00
750	MOTORCYCLES	0.00	0.00	0.00
799	OTHER	5.26	12.44	32.25
800	OTHER MOBILE	0.00	0.00	0.00
810	OFF ROAD VEHICLES	2.41	3.94	1.61
820	TRAINS	0.09	0.17	2.61
830	SHIPS	0.07	0.15	0.00
850	AIRCRAFT - GOVERNMENT	0.00	0.00	0.00
860	AIRCRAFT - OTHER	0.50	0.24	0.00
870	MOBILE EQUIPMENT	2.38	3.99	0.00
880	UTILITY EQUIPMENT	0.51	0.82	0.00
891	SEEPS/BIOGENIC	0.00	0.00	0.00
892	CHANNEL SHIPPING	0.00	0.00	0.00
893	OCS AND RELATED SOURCES	0.00	0.00	0.00
894	TIDELAND PLATFORMS	0.00	0.00	0.00
900	UNSPECIFIED SOURCES	0.00	0.00	0.00
TOTAL		14.14	25.67	41.55

TABLE 9

Alternative Control Strategy Modeling Evaluation
Summary of Emissions and Model-Predicted Peak Ozone Concentrations

Scenario	Episodic - Specific Emissions (tons/day)		Basin Peak Ozone Concentration (pphm)
	ROG	NO _x	
2010 Baseline	1297	1130	29.8
ROG-Only	697	1126	18.5
SCE Alternative Strategy	497	860	13.7
Realistic Alternative Strategy	476	692	15.6
2010 with Tier I & Tier II	423	335	16.6
2010 with Tiers I, II, & III	212	209	12.6

* Modeling region total emissions on the first day of the 3 day episode simulated.

**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

GROWTH MANAGEMENT PLAN

Comment: Electrification

Comments express concern on the cost of electric vehicles (EV)
...comments on public transportation.

Commentor: David Harbaugh (10/26/88)

Response: Lack of basic research and development does seem to present
problems with full implementation at this time. In future years,
with sufficient research, solutions may be able to lower EV costs
substantially.

Environmental issues associated with current EV technology,
including problems with battery acid, disposal of batteries, etc. are
serious and need attention. These problems may be overcome by
the use of new technological solutions, or by the development of
more efficient recycling.

Regarding public transportation, without a comprehensive program
of funding we may well fall short of the objectives of the AQMP.
Better land use, ties to transportation infrastructure, can make the
use of public transportation easier and more cost effective.

Many of these problems are recognized in the AQMP. The
Growth Management portion of the AQMP attempts to deal with
the need to tie growth into available transportation. The EV
portion of the report is a Tier III strategy, which recognizes the
need for extensive research and development.

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GROWTH MANAGEMENT PLAN

Comment: Baseline Projection/Baseline Impact Assessment

The Plan should analyze the cause and components (births, deaths, migration and immigration) of population growth and examine possible ways of limiting growth.

Commentor: Western Oil and Gas Assn. (10/27/88)
Coalition for Clean Air (10/27/88)
Group Against Smog Pollution (10/27/88)
Marc Drehsen (10/7/88)
Barbara Manz (10/27/88)
Ernestine Barrett (10/27/88)
Sierra Club San Geronimo Chapter (01/26/88)
Coalition Against the Pipeline (10/22/88)
Pacfreze (10/24/88)

Response: The components of population growth and its impacts have been analyzed in detail in the Draft Baseline Projection (8/86) and the Impact Assessment (3/87). Growth limiting measures are possible options that local jurisdiction may choose if it helps toward better J/H balance. (See regulatory strategies in appendix 2 of the GMP). However, regional growth limits that restrict migration maybe unconstitutional for domestic migration and restrictions on international migration (legal and undocumented) may require changes to Federal laws.

A growth control contingency analysis has also been prepared as an appendix to the GMP.

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GROWTH MANAGEMENT PLAN

Comment: **Congestion and Air Quality**

Need to look at development and air impacts from a whole perspective and not by small areas alone.

Commentor: **Carolyn Wood (10/27/88)**

Response: Growth and air impacts are examined at the subregional, county and regional levels.

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GROWTH MANAGEMENT PLAN

Comment: **Conservation and Open Space (See Policies)**

Need to conserve open and space in order to preserve wildlife.

Commentors: **U.C. Riverside (10/25/88)**
 Ernestine Barrett (10/27/88)

Response: GMP policy states: Preserve open space areas identified in local, state and federal plans and those in SCAG's Conservation and Open Space Plan. Preserve, wherever possible prime agricultural land and open space areas separating communities. Protect vital natural resources as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique or endangered plants and animals.

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GROWTH MANAGEMENT PLAN

Comment: The Implementation Process

Identify promising revenue-sharing schemes, and other economic incentives and disincentives that local governments can pursue to reduce the public service cost deficit associated with residential development.

Commentor: Herbert Spencer (10/24/88)
The Irvine Company (10/27/88)
Rural Canyon Residents Association (10/27/88)

Response: The GMP implementation process leaves it up to local jurisdictions to choose implementation measures appropriate to the local condition. No recommendation as to what measure should be implemented is made. A menu of possible actions is suggested among them is tax revenue sharing. Tax revenue sharing is not a recommended measure as the implementation process is based on the premise that implementation is to be carried on a voluntary basis by local jurisdictions, at least in the first five years and within presently available regulations. The introduction of tax revenue sharing would necessitate new legislation and the possible creation of a new regulatory agency.

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GROWTH MANAGEMENT PLAN

Comment: **The Implementation Process**

Oppose implementation measures which mandate new regulations

Commentor: **Building Industry Association (10/27/88)**

Response: Appendices 1 and 2 of the GMP are menus or laundry lists. The choice of local measures is the prerogative of local jurisdictions. The GMP does not recommend specific actions. As the implementation chapter mentions, the process is to be carried through within existing regulations. The local measures are suggested, but not proposed or recommended.

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GROWTH MANAGEMENT PLAN

Comment: **The Implementation Process**

What effect will implementation of the Aqmp have on current state housing requirements for local jurisdictions?

Commentor: **City of Moreno Valley (10/27/88)**

Response: The proposed Aqmp does not conflict with state housing requirements.

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GROWTH MANAGEMENT PLAN

Comment: **The Implementation Process**

Sewer hook-up limitations should be enforced.

Commentor: **Orange County League of Women Voters (10/15/88)**

Response: The GMP implementation process leaves it up to local jurisdiction to choose implementation measures appropriate to the local condition.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

Simplistic generalizations such as "job-rich" and "housing-poor" tend to impact minorities and the poor the most. Only the young and wealthy would be able to respond to employment and housing opportunities out of the impacted regions, and "reduced mobility" will isolate low income households from the middle class.

Commentor: Minority Coalition for Responsible Growth (11/22/88)

Response: The Growth Management Plan (GMP) through the proposed job/housing (J/H) balance policy and its implementation is designed to avoid exacerbation of present inequities by encouraging housing development and redevelopment and promote accessible housing by ensuring an adequate supply where it is needed.

The GMP job-housing balance policy is designed to ensure a more equitable distribution of employment and housing opportunities throughout the region by promoting growth in employment near where people live and where more employment opportunities are needed. By increasing the housing stock to adequately meet the needs of the growing population housing becomes more accessible and more affordable.

The GMP is developed to avoid the socio-economic polarization of the region. This issue is developed in one of the appendices of the report.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

Los Angeles is lumped together as if everyone lived downtown where the area is job-rich and housing-poor.

Commentor: Minority Coalition for Responsible Growth (10/22/88)

Response: The City of Los Angeles is split between four subregions. Only a portion of one subregion encompasses the downtown area.

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Comment: Jobs/Housing Balance

Under J/H Balance, what happens to an area that is both job-poor and housing-poor?

Commentor: Minority Coalition for Responsible Growth (10/22/88)

Response: An area cannot be job-poor and housing-poor at the same time using the above definition unless the terms refer to an area which is disadvantaged both in terms of job and housing conditions; an economically depressed area which substandard housing. The GMP specifies that in such areas job growth should be encouraged even if the area is within the boundaries of a job-rich subregion as well as housing development and redevelopment. The job-housing balance implementation process specifically mentions that projects which should be exempt from the review and mitigation process are proposals for low income housing, for senior citizen housing and proposals to add needed jobs in economically depressed areas.

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GROWTH MANAGEMENT PLAN

Comment: **Jobs/Housing Balance**

What is the definition of "job-rich" or "housing-poor" subregions?

Commentor: **Minority Coalition for Responsible Growth (10/22/88)**

Response: The GMP defines a job-rich area or subregion in 1984 as having a jobs to total housing ratio greater than 1.27 which is the regional ration. (Dividing the total number of jobs by the total number of housing units gives us the job-housing balance ratio.) The region as a whole is assumed to be balanced. Almost all the people living in it also work in it. In 2010 the ratio at the regional level is projected to be 1.22. In 2010 a job-rich subregion is one with a jobs to housing ratio greater than 1.22. Conversely, housing rich subregions have ratios that are lower than the regional average (1.27 in 1984 and 1.22 in 2010).

Projecting growth in housing and jobs by subregion to the year 2010, most of the job-rich subregions in 1984 become even more imbalanced in 2010 and most of the housing rich subregions become more imbalanced towards more housing growth than the regional average. The job/housing balance policy attempt to redress the imbalance, for each subregion by redirecting some job growth to housing rich areas and some housing growth to housing poor areas.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

An agreement with the City of Irvine regarding SCAG's population, housing and employment projections should be attained prior to the adoption of the AQMP.

Commentor: City of Irvine (10/26/88)

Response: The GMP City forecasts will be completed and submitted for local review after the adoption of the AQMP and the GMP (adoption in Dec. of 1988). The City forecasts for the year 2010 will not be adopted but will be used for technical purposes.

The 1994 housing figure in the Regional Housing Needs Assessment for the City of Irvine has been revised to reflect the City's appeal for revision.

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Comment: Jobs/Housing Balance

The Plan makes no provision to ensure local compliance with the recommended J/H balance actions.

Commentor: U.C. Riverside (10/25/88)

Response: If by January 1, 1994, it is estimated, through the monitoring process, that the J/H balance targets at the subregional level will not be met, the targets and measures to attain them could be reassessed. For areas where it is assessed that J/H imbalance has worsened, the SCAQMD could develop more stringent provisions of and more vigorously enforce an Indirect Source Rule and New Source Review; the Regional Water Control Boards could expand the application of the National Pollutant Discharge Elimination System; and the State (HCD) could require stricter implementation of the housing laws. Other potential actions could include State review of laws governing local general plans, and recommended changes to existing redevelopment laws.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

Considerable doubt as to ability of job-rich areas such as Orange County to accommodate additional housing. The projections must emphasize the relationship between population growth and natural resource limitations.

Commentor: Sierra Club, San Geronio Chapter (10/26/88)

Response: Implementation of J/H balance will be undertaken by local jurisdictions. A city which is impacted either on the housing or on the job side will not be compelled to grow beyond its capacity. Within a subregion, local jurisdictions can trade targets and negotiate measures in relation to their particular situation (i.e. land availability).

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Comment: Jobs/Housing Balance

J/H Balance has the potential of causing developers to choose to build outside of the Basin, resulting in a lose of jobs.

Commentors: Federation of Labor, AFL-CIO (10/28/88)
City of Tustin (11/1/88)
Ontario Chamber of Commerce (10/5/88)

Response: The purpose of the J/H Balance policy is to achieve a better job/housing balance at the subregional level. The policy encourages and provides incentives in job-rich subregions to attract housing growth; and encourages and provides incentives in housing-rich subregions to attract job growth. (See Appendices 1 and 2 of the GMP for the menu of implementation measures.) It is the intent that developers choosing not to build in job-rich subregions be encouraged to go to job-poor subregions within the region.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

The J/H Balance strategy, within SCAG's GMP and the RPM, is designed more to address growth and transportation problems than it is to address the air quality attainment needs of the region.

Commentors: Orange Co. Board of Supervisors and CAO (10/27/88)
American Lung Association (10/12/88)
Ontario Chamber of Commerce (10/5/88)

Response: The J/H Balance policy of the GMP supports the RMP and the AQMP objectives. The implementation of the J/H Balance results in substantial improvements on both the transportation system and the regional air quality over the Baseline projection. J/H Balance reduces commute distance (VMT) by 33.4 million miles/day (8.5%) which in turn reduces ROG emissions from mobile sources by 46.5 tons/day.

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Comment: Jobs/Housing Balance

It makes sense to concentrate population growth near the coast, however, no policy advocates this; instead there is only prediction of large scale population increase in the inland areas.

Commentor: U.C. Riverside (10/25/88)

Response: The J/H Balance policy in the GMP emphasizes more housing growth in Orange Co. (coastal) and employment growth in the inland counties relative to trend projections. (See GMA-4 Mod J/H forecasts in the GMP.)

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

Provide adequate consideration to growth in the L.A. Basin for the next 20 years and the need for J/H balance.

Commentors: Fern Field (10/25/88)
Jeanne Troy (10/25/88)
Norman Brooks (10/25/88)
Dr. and Mrs. Newell Johnson (10/28/88)
Southern California Rapid Transit District (11/3/88)
Keep Riverside Ahead (10/26/88)

Response: One of the purposes of the GMP is to provide a forecast (year 2010) of population, housing and employment for the six counties in the SCAG region. The level of growth presented in the GMP is incorporated into SCAG's functional plans such as the AQMP, Regional Transportation Plan and the Regional Housing Needs Assessment. The process of implementing the J/H Balance policy is included in the GMP.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

Emphasis needs to be given to approaches to increasing density and to creating incentives for affordable housing in job-rich subregions.

Commentors: Building Industry Association (11/8/88)
U.C. Riverside (10/25/88)
City of Loma Linda (10/24/88)

Response: Appendices 1 and 2 of the GMP lists measures that increase densities and create incentives for affordable housing. Local jurisdictions can use measures that encourage housing development in job-rich subregions in accordance with allocations in the Regional Housing Needs Assessment by providing developments with additional incentives and/or reducing housing construction limitations.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

In order to determine a realistic air pollution benefit for J/H balance, it is necessary to make clear the extent to which cities will be required to add units.

Commentor: City of Newport Beach (10/18/88)

Response: With the assistance of local jurisdictions and subregional entities, SCAG shall develop each subregion, and for local jurisdiction J/H balance targets in 5-year increments. The Regional Housing Needs Assessment (RHNA) also presents housing needs by jurisdiction.

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Comment: Jobs/Housing Balance

J/H balance needs to be coordinated with centers or nodes within the region--emphasis on the concept of centers.,

Commentors: Building Industry Association (10/27/88)
Los Angeles County CAO (10/26/88)
The Irvine Company (10/27/88)
U.C. Riverside (10/28/88)
Ryan Snyder (10/22/88)

Response: The GMP includes the policy to encourage growth in and around: activity centers, transportation nodes and corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment. Centers are also examined in the Urban Form Analysis paper in the GMP (see Appendix 3).

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

SCAG's working definition of "job-rich" (areas where the employment-to-housing ratio exceeds 0.55) is inappropriately low for many urbanized and urbanizing portions of the Basin, and is well below the existing and projected regional J/H ratio.

Commentor: The Irvine Company (10/27/88)

Response: The J/H ratio for 1984 is 1.25 and for 2010 it is 1.22, the 0.55 ratio is not used anywhere. (See page VII-11 of the GMP.)

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Comment: Jobs/Housing Balance

Amending the General Plan by 1990 to achieve J/H targets if unfeasible, and may be the target of substantial public opposition.

Commentor: Los Angeles County CAO ((10/26/88)

Response: Will be given further consideration.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

Present a broad enough menu of J/H balancing options for local governments to consider. Each subregion must be allowed to formulate the combination of incentives and controls that it finds appropriate. The implementation discussion also jumps to the conclusion that sewer allocations are necessary to control the location of jobs and housing.

Commentor: The Irvine Company (10/27/88)

Response: The GMP includes two appendices mentioning a wide array of actions that could be implemented to achieve J/H balance without making specific recommendations. The implementation strategy emphasizes local decision making. The GMP does not mention sewer allocation as necessary to accomplish J/H balance.

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Comment: Jobs/Housing Balance

Incentives to direct new jobs and housing to appropriate areas should be favored over dislocation.

Commentor: The Irvine Company (10/27/88)

Response: The GMP emphasizes provision for incentives to attract job growth in job-poor areas and housing growth in housing-poor areas. Two examples are:

- o Target basic industries. This is a tool which can be used by job-poor localities to identify industries and attract them by providing the proper incentives, such as tailoring their economic activities to the industries' requirements.
- o Encourage housing development in job-rich subregions in accordance with allocations in the regional housing needs assessment by providing developers with additional incentives.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

Orange County's housing profile reflects a high percentage of two-worker households. This trend is expected to increase in the future. J/H balance criteria should take into account regional and subregional differences in the number of workers per household.

Commentor: The Irvine Company (10/27/88)

Response: Two worker households are projected to increase regionwide as implied in SCAG's demographic and econometric projection model and not only in Orange County. In all likelihood, the rate of increase will be higher in other counties.

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Comment: Jobs/Housing Balance

There is merit in locating jobs near residents, however, incompatible land uses (i.e. industries near schools or residential neighborhoods) must be avoided for public safety reasons.

Commentor: City of Duarte (10/25/88)

Response: Implementation of J/H balance is undertaken by local jurisdictions and they decide whether to or not to grant housing and commercial/industrial permits. Cities can decide the compatibility issue. Cities within the subregion could trade target and negotiate measure--trading commercial for units.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

What assurance is there that the shift in future jobs and housing will produce shorter commutes and have a desired effect?

Commentor: City of Buena Park (10/06/88)
City of Newport Beach (10/08/88)
City of Ontario (10/17/88)
City of Orange (10/26/88)
Rural Canyon Resident Association (10/27/88)

Response: Even if J/H balance does not guarantee every citizen a shorter commute, the transportation modeling of GMA4-Mod J/H shows that regionwide the projected vehicle miles traveled under baseline are reduced by about 30 million miles out of 376 million or 8%. The regional impact is sizable in terms of reducing congestion and reducing emissions of air pollutants.

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GROWTH MANAGEMENT PLAN

Comment: Jobs/Housing Balance

SCAG plans should utilize the lower projected regional total developed by the State Department of Finance (DOF).

Commentor: **City of Buena Park (09/06/88)**
 City of Costa Mesa (09/07/88)
 City of Los Alamitos (09/16/88)
 Orange County Board of Supervisors and the CAO (09/07/88 & 10/27/88)
 The Irvine Company (10/27/88)
 City of Santa Ana (10/27/88)

Response: SCAG plans are based on the GMA4-Mod J/H alternative which forecasts 18.3 million people by the year 2010--about 1.2 million higher than the State Department of Finance projection (17.1 million). Most of the differences between the DOF and SCAG levels of growth are due to differences in methodology and assumptions, specifically, natural increase. The SCAG forecast assumes births, deaths and migration rates by ethnicity. In order to achieve the DOF total, all the ethnic fertility rates had to be merged to the projected white rate in the year 2010, the survival rates were also lowered and the in-migration to the region was reduced to maintain the same net migration levels.

This lower regional total (17.1 million) is presented in the GMP as an alternative (GMA-LOW J/H) and assessed in the GMP EIR.

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GROWTH MANAGEMENT PLAN

Comment: **Jobs/Housing Balance**

Consistency of the AQMP with the projected growth in the Basin.

Commentor: **City of Buena Park (09/06/88)**
 Metropolitan Water District of So. Calif. (10/27/88)
 City of Santa Ana (10/27/88)
 The Irvine Company (10/27/88)

Response: The AQMP is based on the distribution of the GMA-4 Mod. J/H alternative of the GMP (EC approval 5/30/88). It is the GMP that is incorporated into the AQMP.

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GROWTH MANAGEMENT PLAN

Comment: **Jobs/Housing Balance**

Is the implementation of the AQMP politically feasible?

Commentor: **City of Costa Mesa (09/07/88)**
 City of Los Alamitos (09/16/88)
 Inland Empire City Managers (09/23/88)
 City of Buena Park (10/26/88)
 City of Santa Ana (10/27/88)
 City of Fullerton (10/27/88)

Response: Jobs/Housing balance implementation is politically feasible since it is proposed in the GMP that it be carried through voluntarily by existing entities and guided by presently available regulatory measures.

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GROWTH MANAGEMENT PLAN

Comment: **Jobs/Housing Balance**

Can a regional board set targets on local growth when they are not duly elected by the constituents for this purpose?

Commentor: **City of Buena Park (10/26/88)**

Response: With the assistance of Local jurisdictions and Subregional Entities, SCAG develops for each subregion, and for local jurisdiction J/H balance targets in 5 year increments. (See the GMP Proposed Implementation Process chapter)

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GROWTH MANAGEMENT PLAN

Comment: **Jobs/Housing Balance**

Strong care should be taken to ensure that cities retain their decision making authority in selection and implementation of control measures.

Commentor: **Pacfreze (10/24/88)**
 City of Garden Grove (10/27/88)
 Orange County Board of Supervisors and the CAO (10/27/88)
 City of Pomona (11/02/88)
 City of Manhattan Beach (11/02/88)

Response: As part of the implementation process it is proposed that cities decide on whether or not to grant housing and commercial/industrial permits. Implementation of J/H balance is undertaken by local jurisdictions. A city which is impacted either on the housing or on the job side will not be compelled to grow beyond its capacity. Within a subregion, local jurisdictions can trade targets and negotiate measures. Cities are provided with a choice of measures and they can develop their own measures that are applicable to their own situation.

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GROWTH MANAGEMENT PLAN

Comment: Methodology

More attention should be given to the impacts of relatively unconstrained growth.

**Commentor: Los Angeles District Attorney Ira Reiner (10/88)
U.C. Riverside (10/25/88)**

Response: The GMP analyzed a high regional total (GMA-High J/H forecasts 20.2 million in the year 2010) as one of its alternatives. This alternative assumes a continuation of trends over the past five years. The GMP EIR also examined this alternative for its impacts on the region.

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GROWTH MANAGEMENT PLAN

Comment: The Implementation Process

The negative public opinion about J/H balance needs to be reversed.

Commentor: Blue Diamond Materials (10/26/88)

Response: In order to present the benefits of J/H balance, it is imperative to put in place an outreach and information system. A far-reaching educational effort is necessary to muster regionwide support for the J/H balance policy. The outreach program is explained in detail as part of the implementation process of the GMP.

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GROWTH MANAGEMENT PLAN

Comment: **Miscellaneous**

Innovative measures are needed for implementation of the GMP--
for example regional infrastructure banking.

Commentor: **Building Industry Association (10/27/88)**

Response: Market for services of regional infrastructure bank is not clear.

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GROWTH MANAGEMENT PLAN

Comment: Subregional Description

Instead of the current quantitative approach, it is recommended that the SCAQMD and SCAG adopt a growth management measure based on performance criteria designed to improve J/H balance.

Commentor: The Irvine Company (10/27/88)

Response: The numerical targets will be developed for the local jurisdictions, with the targets negotiable within a subregion. The implementation process proposed in the GMP spells out guidelines for assessment of consistency with targets, allows for divergences from set targets if mitigation measures are undertaken to move towards the direction of subregional set ratios.

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GROWTH MANAGEMENT PLAN

Comment: Subregional Description

The formation of subregional entities should include all stakeholder--private and public. Provision need to be made for developers and environmental groups in addition to local governments.

Commentor: Building Industry Association (10/27/88)

Response: Subregional entities, ad defined in the GMP, involves the participation of the private sector. See definition of proposed subregional entities on page VIII-2 of the GMP.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

REGIONAL MOBILITY PLAN

Comment: Capital Improvement Prioritization

The AQMP should urge State and regional political, planning and transportation groups to coordinate to develop a prioritization plan for transportation capital improvements which may need to be reevaluated in light of AQMP policies.

Commentor: City of Anaheim

Response: The Regional Mobility Plan defines a constrained and unconstrained program of improvements which establishes the priorities within the region of which capital improvements will be committed to from projected revenues from existing sources of money. The constrained program would therefore be considered the higher priority program while the unconstrained program would be second priority. The constrained program emphasizes the development of the High Occupancy Vehicle System, some mixed flow additions, and those portions of the Los Angeles Proposition A Rail System, the Orange County Transit District's guideway program and the Riverside County Transportation Commission's Measure A program of roadway and transit improvements.

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REGIONAL MOBILITY PLAN

Comment: **Commuter and Intercity Rail Program**

High speed rail raises environmental concerns.

Commentor: **L. A. County District Attorney, Ira Reiner (10/27/88)**

Response: Local and Commuter Rail services are treated at length in the Section on the Commuter and Intercity Rail Program,(pp. V-28 through V-33)

Services to San Francisco and San Diego are not Light Rail (LRT). The plan provides a specific implementation schedule for upgrading service between Los Angeles and San Diego, as well as to Santa Barbara. Longer distance services, not specified, will be studied as part of the Aviation Program work to relieve existing airports (p. V-34). Environmental consequences would be subject to project specific EIR/EIS.

Rail service from satellite communities is covered by the Los Angeles County Prop. A system, including LRT.

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REGIONAL MOBILITY PLAN

Comment: **Commuter and Intercity Rail Program**

Need for Regional Mass Transit System for Commuters

Commentor: **Valley Industry and Commerce Assn. (VICA) (10/26/88)**

Response: Please refer to the "Commuter and Intercity Rail Program" on
pages V-28 through V-33 of the Regional Mobility Plan.

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REGIONAL MOBILITY PLAN

Comment: **Commuter and Intercity Rail Program**

Transportation/Rail service to satellite communities

Commentor: **City of Commerce (09/19/88)**

Response: Local and Commuter Rail services are treated at length in the Section on the Commuter and Intercity Rail Program pp. V-28 through V-33.

Services to San Francisco and San Diego are not Light Rail. The AQMP provides a specific implementation schedule for upgrading service between Los Angeles and San Diego, as well as to Santa Barbara. Longer distance services, not specified, will be studied as part of the Aviation Program work to relieve existing airports (p. V-34).

Rail service from satellite communities is covered by the Los Angeles County Prop. A system, including LRT.

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REGIONAL MOBILITY PLAN

Comment: **Commuter and Intercity Rail Program**

No reference was made to increasing local commuter rail services.

... a greater portion of our local residents could be served by rail services from satellite communities to central business districts.

Commentor: **City of Commerce (10/26)**

Response: The Commuter and Intercity Rail Program in the RMP recommends not only LA-San Diego and LA-Santa Barbara intercity train service, but also the implementation of LA-Ventura County commuter service, and detailed studies of LA-Saugus, LA-San Bernardino, LA-Orange County, and Riverside-Irvine commuter services. It is also recommended that the future role of Los Angeles Union Passenger Terminal be conducted, with respect to regional commuter rail needs. (See pp. V-28 to V-33.)

Not only have commuter rail studies been recommended, but in addition the Transit Program describes the inclusion of 9 high capacity and 16 medium capacity transit corridors, which follow and also extend significantly the Los Angeles County Transportation Commission's Proposition A Heavy and Light rail Systems (including MetroRail, the LA-Long Beach, Norwalk-El Segundo, Coast, and Pasadena rail lines). (See pp. V-21 to V-27.

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REGIONAL MOBILITY PLAN

Comment: Commuter and Intercity Rail Program

Orange County is going to have to team up with all the other counties of the Basin to clean up the air and he suggests that electric railroads and magnetic levitation trains, such as those under development in West Germany and Japan, can be part of the answer.

Commentor: Gerhard Peters (10/27)

Response: A number of rail transit and commuter rail services are recommended for implementation and others for further study in the RMP. Although some of the commuter trains would be diesel powered (at least initially), the Los Angeles County Proposition A rail lines, including MetroRail and the LA-Long Beach, Norwalk-El Segundo, Coast, and Pasadena LRT lines will be electric powered (see the TRANSIT SECTION, pp, V-21 to V-27)

The RMP recommends that high speed intercity rail development should be considered as an alternative to airline or auto travel where positive benefits are shown in terms of congestion relief, and time and energy saved (p. IV-5 to IV-6). Also, p. IV-3 recommends that new transportation infrastructure should incorporate the most advanced technology available. Hence, electrification and magnetic levitation would certainly be considered in evaluating the potential of high speed intercity rail lines.

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REGIONAL MOBILITY PLAN

Comment: **Commuter and Intercity Rail Program**

Existing railroads should be given more attention for mass transit and freight hauling, as opposed to buses and trucks. Monorails along side/above freeways should be included.

Commentor: **American Lung Association (Don Blose) (10/26/88)**

Response: The RMP section called Commuter and Intercity Rail Program recommends a number of commuter/intercity rail improvements on the LA-San Diego and LA-Santa Barbara rail corridors from LA to Saugus, LA to San Bernardino, and Riverside to Irvine.

Also, the RMP Transit Program includes the LA County Proposition A corridor improvements, which will provide light rail or rapid transit on a number of corridors, with the option of using railroad rights-of-way for portions of the Coastal Corridor, LA-Pasadena line, and San Fernando Valley east-west line. The LA-Long Beach LRT line, which uses portions of an existing rail corridor and also parts of an abandoned branch line, is scheduled to open in 1990.

The section on Maritime, Railroads, and Goods Movement describes a major rail freight improvement plan for port related traffic, consolidating through movements to the ports on the Alameda Corridor. This will divert movements of marine containers between the Ports of Long Beach and Los Angeles from trucks to trains.

Monorails do not constitute a single transit mode. This term has been used to describe a number of unconventional rapid transit modes. Monorails have no proven advantages over conventional duorail transit for freeway corridors, and will be more expensive than at-grade light rail. However, suspended monorails may be useful for certain aerial alignments over city streets or arterials where the narrow overhead beam could reduce visual intrusion. Their use should be considered on a case-by-case basis.

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REGIONAL MOBILITY PLAN

Comment: **Commuter and Intercity Rail Program**

Measure 2.g should maximize existing transit systems, including rail.

Commentor: **Laguna Greenbelt, Inc. (10/7/88)**

Response: RMP calls for rapid progress toward completion of planning and implementation of commuter rail service throughout region. (See Regional Mobility Plan, pp V 28-33)

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REGIONAL MOBILITY PLAN

Comment: Development Fees

Consider instituting a development fee - \$5.00 per sq. ft. for pollution and congestion.

Commentor: Geo Stanton, Pacfreeze (10/25/88)

Response: Development fees were considered in each of the alternatives as a method of raising revenues for highway and transit capital. In the draft plan however, only benefit assessment fees are proposed within two and a half miles of the proposed transit corridors. These assessments would only apply to residential developments in Riverside and San Bernardino Counties and on nonresidential developments in Los Angeles and Orange Counties.

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Comment: Financial Element

Need to combine, integrate funding sources for transportation, air plans.

Commentor: Building Industry Association (10/27/88)

Response: Funding for implementation of plan will come from a variety of sources. Those currently in existence will fund the Constrained Program, and new sources will be developed to fund the Unconstrained Program. Planning will be coordinated at the Regional level through certification of local plans for consistency with Regional Plans.

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REGIONAL MOBILITY PLAN

Comment: Electric Vehicles

Commentor: Mobil Oil (10/27/88)

Response: The issue of fleet turnover is valid but is addressed, at least partially, in the AQMP. The level of electric vehicle market penetration has varied over the development of the AQMP, but the scenario did not envision complete fleet turnover by 2010. If the current document does call for complete turnover, this may have to be addressed.

The issue of necessary electrical generating capacity was dealt with extensively in the Energy portion of the AQMP. Environmental factors which could occur would depend upon the fuel sources (fossil fuels, fission, fusion, solar, wind, hydro-electric, or other) at the location of power production. Conservation could create substantial additional available electric power without any additional negative environmental consequences.

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REGIONAL MOBILITY PLAN

Comment: Financial Element

Funding for many of the control measures were not dealt with in the AQMP. The cost of the proposed transportation measures are estimated to be \$42 billion, with \$13 billion expected to be available. The remaining \$29 billion was not addressed when considering either cost or funding availability. The assumed ability of local government to fund the proposed control measures, continues to support the contention that the plan for improved air quality is a "pipedream".

Commentor: City of Garden Grove (10/13/88)

Response: The Draft Regional Mobility Plan (October 1988) includes both revised cost figures and a financial plan to raise shortfalls in capital and operating and maintenance costs (Chapter VI). The plan sets forth a multi-source financial plan, which includes possible increases in state or local gas taxes. If selected as a financing tool, these two specific sources of revenue would also raise monies for local government streets and roads. Revenues for system management programs which directly effect local governments could be paid for with monies estimated from existing revenue sources.

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REGIONAL MOBILITY PLAN

Comment: **Financial Element**

We thought funding should be addressed more detailedly... here's a \$57 billion cost to the transportation measures. And even though that is a transportation measure. That's still a part of this package and the funding for that should be accounted for people of the basin.

Commentor: **Mr. Dana Ohanesian, City of Garden Grove (10/27/88)**

Response: Chapter VI of the Draft Regional Mobility Plan (appendix of the AQMP) identifies both the available revenues and a program of various fees, taxes and assessments to raise the revenue shortfalls for both capitol and operating and maintenance.

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REGIONAL MOBILITY PLAN

Comment: Financial Element

1. Some very major areas are not well addressed. First of these is funding for the transportation related issues....Realism requires the assessment that the vast majority of these funds must be generated within the basin. How? - bonds? special gas taxes? special real estate taxes? special sales taxes? The source of these funds must be specifically identified.
2. Do we limit the number of visitors to the basin?...If the number of tourists is to be limited, how is this to be accomplished? A lottery system to choose who gets to come in? A bidding system where only the highest bidders get to come in?...

Commentor: Blue Diamond Materials (10/11/88)

- Response:**
1. The Draft RMP (Appendix IV-G) details in the financial element (Chapter VI) the anticipated revenues and cost shortfalls for both highway and transit capital and operating and maintenance. The financial element then identifies a series of means to raise estimated revenue shortfalls. The financial plan emphasizes user based fees and is detailed on pages VI-5 through VI-9 of the Mobility Plan.
 2. The Demand Management Program of the Regional Mobility Plan (Appendix IV-G) includes an action on page V-11 for auto Use Restrictions which addresses parking at "special event centers with occupancies of 10,000+. This action is being revised to require local governments to "analyze, identify benefits, burdens and applicability of" requiring auto use restrictions prior to its implementation.

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REGIONAL MOBILITY PLAN

Comment: **Financial Element**

Who will pay the cost of AQMP implementation?

Commentor: **Richard Ackerman, Mayor of Fullerton (10/12/88) Lloyd Zola, Ontario Chamber of Commerce (10/12/88)**

- Response:**
1. Monies raised for operations and maintenance of demand management programs could be used to pay for the local government implementation of demand management programs. System management programs should be incorporated as part of the ongoing road maintenance and capitol improvements programming. Fines and or fees for peak period parking violations or residential permit programs could be sized to offset costs to local governments for implementing the programs.
 2. Monies for transportation capitol expenditures could be raised in part through increases in the state gasoline tax. Existing sources of revenue are assumed to continue. Chapter VI of the Regional Mobility Plan details choices for raising revenues.

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REGIONAL MOBILITY PLAN

Comment: Financial Element

The AQMP should include an analysis of the effect of each TCM on The Inland Empire areas of the District as well as on the Los Angeles/Orange County areas so that the overall effect on the District as a whole can be determined. If there is insufficient time to prepare such analysis by the deadline for the plan adoption, the District or other implementing authority should insure that prior to adoption, the TCM's are tailored to be fully cost-effective wherever they are implemented.

**Commentors: Inland Empire Economic Council
Keep Riverside Ahead (10/4/88)**

Response: Transportation Control Measures defined in the AQMP are only expected to be applied in the South Coast Air Basin. However the TCM's in the Mobility Plan are expected to be applied throughout the five counties within the region for congestion relief as well as emission reductions. Cost effectiveness is considered in all SCAQMD rule making. The financial element of the Draft RMP sets forward a program to raise revenue shortfalls. The emphasis of this program is on user based fees.

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REGIONAL MOBILITY PLAN

Comment: **Financial Element**

Public Transit is expensive

Commentor: **David Harbaugh (10/24/88)**

Response: The RMP Financial Plan proposes to increase the cost of automobile use to raise more of the cost of using private vehicles, and would simultaneously divert travel to public transit which would then operate nearer capacity for much of the day, making it more viable and economical mode of transportation.

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REGIONAL MOBILITY PLAN

Comment: **Financial Element**

There is a lack of information about cost to local government particularly for SCAG Measures in the AQMD.

Commentors: **Joel Rosen, City of Fullerton 10/12/88 San Bernardino Public Hearing**
Richard Akerman, Mayor of Fullerton 9/28/88 Letter submitted at 10/12/88 Hearing.

- Response:**
1. Monies raised for operations and maintenance transportation of demand management programs could be used to pay for the local government implementation of demand management programs. Systems management programs should be incorporated as part of the ongoing road maintenance and capitol improvements programming. Fines and or fees for peak period parking violations or residential permit programs could be sized to offset costs to local governments for implementing the programs.
 2. Monies for transportation capitol expenditures could be raised in part through increases in the state gasoline tax. Existing sources of revenue are assumed to continue. Chapter VI of the Regional Mobility Plan details choices for raising revenues.
 3. Development fees where considered in each of the alternatives as a method of raising revenues for highway and transit capitol. In the draft plan however, only benefit assessment fees are proposed within two and a half miles of the proposed transit corridors. These assessments would only apply to residential developments in Riverside and San Bernardino Counties and on nonresidential developments in Los Angeles and Orange Counties.

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REGIONAL MOBILITY PLAN

Comments: Financial Element

1. It is not clear to what extent the Draft AQMP relies on the implementation of the RMP to achieve pollution reduction. What combination of strategies and costs were assumed in its development.
2. The document (Draft EMP) does not identify the emission reductions brought about by the alternative strategies. (page 10)
3. ...for purposes of improving air quality in San Bernardino and Riverside Counties, the transit and transportation funding would first be channeled along the coastline and not the interior Counties. (page 11)

Commentor: Orange County Board of Supervisors (10/26/88)

- Responses:**
1. The Draft AQMP has been based upon the implementation of Mobility Plan Strategy Three. The preferred strategy of the Draft Regional Transportation Plan (RTP) is based on strategy three while including a different growth distribution one of job/housing balance. The (AMP) and the preferred strategy of the MP include an identical and extensive demand management program, system management program and a facilities program. The capitol cost for the preferred strategy is \$56 billion dollars.
 2. The Draft EIR of the RMP includes an air quality impact assessment of the preferred strategy and the four earlier strategies in the assessment of the alternatives. Emission reductions for all are located on pages 164 and 165.
 3. Existing sources of transportation funding are collected and distributed based upon a variety of funding formulas and regulations governing their distribution and their use. The constrained program of the RMP does not propose to modify these formulas or the sources of revenue. Additions to existing

sources and new sources of revenue are proposed in the financial element of the RMP (pages VI-6 and VI-7).

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REGIONAL MOBILITY PLAN

Comment: Financial Element

If the plan does not state that new state and federal funds are a prerequisite,...local jurisdictions could be forced to fund implementation of these [Tier II] measures themselves.

Commentor: Los Angeles County Transportation Commission (10/27/88)

Response: The plan does state that the development of additional funding is a prerequisite for the implementation of Tier II projects. See p.5.

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REGIONAL MOBILITY PLAN

Comment: Financial Element

"..Tier II ..now contains all of the projects previously in Tier I, as well as the previous Tier II measures. ..Therefore, the commissions is still called upon to fund, construct, and implement all \$37 billion of projects ..in AQMP."

Commentor: Los Angeles County Transportation Commission (10/27/88)

Response: This comment appears to be based on an incorrect definition of Tier I and Tier II. For transportation facility improvements, Tier I actions are those which can be implemented over the next twenty years, based upon existing revenue projections. For transportation facility improvements, all Tier II projects depend upon developing additional funding. The initial Tier II commitment consists of pursuing the financial actions specified in the RMP. Commitment to implement these Tier II projects depends upon the success of the financial actions.

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REGIONAL MOBILITY PLAN

Comment: Financial Element

1. The reduction of parking combined with increased enforcement costs, which local governments would pay for from parking fees and fines, would probably not result in increased net revenue.
2. Many implementation actions contain terms which are not defined therefore it is not possible to determine whether an implementation action applies to a specific area. Examples of such terms are "major activity centers," "congested," and commercial activity center. If it is the intent of the plan to allow local government the opportunity to define these terms, that should be made clear in the plan. However, if this is not to be left to local government, that SCAG must define these and other terms.

Commentor: City of Newport Beach (10/18/88)

- Response:**
1. The reduction of on street parking during peak periods, one of the parking management control measures (page V-9 of the Draft Regional Mobility Plan) would not impact the revenue raising approach envisioned in the financial element of the Regional Mobility Plan. Local government enforcement (through fines) of the onstreet parking restrictions or residential permit program fees could be scaled to cover the costs to the local jurisdiction to enforce the programs.

Increased parking fees are anticipated in employment centers to offset the cost of demand management ridesharing programs as well as to raise revenues for transit capital and operating and maintenance costs. Some reduction in anticipated revenues could be expected from graduated parking fees based on auto occupancy.

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REGIONAL MOBILITY PLAN

Comments: Financial Element

- 1) There should be a more detailed explanation of the \$2 per/day benefit calculation.
- 2) We thought funding should be addressed more detailed... here's a \$57 billion cost to the transportation measures. And even though that is a transportation measure. That's still a part of this package and the funding for that should be accounted for people of the basin.

Commentor: Mr. Dana Ohanesian, City of Garden Grove (10/27/88)

- Responses:**
- 1) A cost benefit analysis is currently being completed to provide a more detailed explanation of the financial strategy.
 - 2) Chapter VI of the Draft RMP (appendix of the AQMP) identifies both the available revenues and a program of various fees, taxes and assessments to raise the revenue shortfalls for capitol and operating and maintenance.

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REGIONAL MOBILITY PLAN

Comment: **Freeway Construction**

Opposed to freeway construction

Commentor: **Jane Darby, League of Women Voters (10/27/88)**

Response: In conjunction with the growth management, system management, demand management, and transit development programs in the RMP and AQMP, the need for traditional freeway widening and construction has been minimized. Freeway construction will, however, remain necessary to achieve the air quality benefits of reduced congestion and to improve mobility.

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REGIONAL MOBILITY PLAN

Comment: High Occupancy Vehicle Program

Concern is expressed about the level of High Occupancy Vehicle lane facilities in the Valley being adequate to achieve the Transportation Demand Management goals set forth in the Regional Mobility Plan/AQMP.

Commentor: VICA (10/26/88)

Response: This is a legitimate concern, although long term plans call for more extensive HOV facilities. These concerns are expressed in the comments presented addressing the RMP.

The financial problems associated with the RMP portion of the RMP. Are substantial and could severely impact the ability to achieve the regional AQMP objectives. Further development of financing alternatives will be an evolutionary process. Thus, it will be difficult to predict future revenue sources accurately.

The VICA comments on methanol are reflective of the problem that the SCAQMD appears to be having with explaining the full range of clean fuel substitute. Methanol may have substantial environmental problems, as well. These comments should be directed to the SCAQMD. The SCAQMD is the party responsible for alternative fuels policy development, not SCAG.

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REGIONAL MOBILITY PLAN

Comment: **High Occupancy Vehicle Program**

HOV lanes have proven to be a cost-effective method to increase capacity within existing and new corridors, and major increases in HOV lane construction/designation are expected throughout the nation during the 1990s.

Commentor: **California Energy Commission (10/27/88)**

Response: This comment supports the HOV Element of the RMP.

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REGIONAL MOBILITY PLAN

Comment: High Occupancy Vehicle Program

Commentor: San Gabriel Valley League of Women Voters (10/25/88)

Response: HOV lanes serve two functions in the AQMP. At one level, HOV lanes facilitate the effective implementation of the other Transportation Demand (TDM), such as Transportation Control Measure (TCM) 2a, "Employer Rideshare and Transit Incentives." Employee participation in vehicle trip reduction (rideshare) programs will be much increased if facilities are developed whereby participants receive the benefit of a travel time savings. At another level, HOV lanes have been demonstrated to be effective measures in their own right for increasing carpooling. As it states in the Los Angeles County Transportation Commissions' (LACTC) Draft Carpool Lane Plan, "the existing carpool lanes in Southern California carry twice as many people, in fewer cars, than regular freeway lanes and therefore save time for everyone, including those who cannot carpool".

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Comment: High Occupancy Vehicle Program

The AQMP should take into consideration the Draft Carpool Lane Plan, as prepared by the Los Angeles County Transportation Commission (LACTC).

Commentor: LACTC

Response: The HOV Element of the RMP was developed in consultation with the staff LACTC, (Caltrans), and other agencies. the constrained program reflects the short and mid-term programming priorities of LACTC as indicated in the LACTC carpool lane report.

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REGIONAL MOBILITY PLAN

Comment: High Occupancy Vehicle Program

Transportation agencies should be bound by commitment to implement HOV lanes.

Commentor: Ira Reiner, Los Angeles County District Attorney (10/26/88)

Response: Agreed. Commitment by all appropriate agencies is essential, and should be strengthened by all available means. To this end, the Regional Mobility Plan contains important policies giving priority to the implementation of all TCM's, and specifically to HOV lanes.

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REGIONAL MOBILITY PLAN

Comment: High Occupany Vehicle Program

It is recommended that more emphasis be placed on traditional "reverse" bus and carpool lanes than is currently being promoted in the plan.

Commentor: City of Pomona (10/27/88)

Response: The RMP and AQMP do not specify design or operation of the designated HOV lanes. Such determinations, as in the case of possible reversible lanes, must be made during the project development stage. It does not appear, however, due to the fairly balanced peak period directional demand on most freeways, that there will be relatively few locations where reversible lanes could work.

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REGIONAL MOBILITY PLAN

Comment: **High Occupancy Vehicle Program**

Enforcement of traffic laws affecting the operation of HOV lanes are valid. Enforcement is a very serious problem.

Commentor: **Gerhad Peters (10/26/88)**

Response: Sever non-compliance results in ineffective use of the facility. recent changes in law may tend to alter this illegal activity. Fines have been raised substantially for violators of carpool lanes and ramp bypass laws. The fine for a first offense will be \$100. \$200 for the second, and \$300 for a third.

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REGIONAL MOBILITY PLANS

Comment: Long Range Corridors

Add routes to long range corridor map.

Commentor: VICA

Response: The focus of the long range corridor map is those locations of potential future need in the less developed areas which might be protected from development by better informed and coordinated land-use decisions. Corridors in the more developed areas, such as Rte. 90 and Rte. 2 were therefore not considered. The Rte. 126 improvement is included in Table V-3. The north/south connection throughout the San Fernando Valley was considered. The long range corridor map calls for the identification of an east/west corridor south of Rte. 91 and between I-15 and I-5.

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REGIONAL MOBILITY PLAN

Comment: Mass Transportation

- 1) Emphasis should be on transit expenditures instead of new freeways like the San Joaquin Hills Corridor.
- 2) Local mini buses should be included in the Regional Mobility Plan (RMP).

**Commentor: Marilyn DeWitt; Orange County League of Women Voters
(10/15/88)**

- Response:**
- 1) The constrained program, the first priority capitol expenditures program, emphasizes High Occupancy Vehicle (HOV) construction. Only those portions of the Southern California Rapid Transit District's (SCRTD) METRORAIL program, the Los Angeles Transportation Commission's Proposition A rail system, the Orange County Transit District's transitway program, and the Riverside County Transportation Commission's Measure A (depending on 11/8/88 election outcomes) which the operators feel could be constructed from available revenue sources.
 - 2) The transit program describes the need for both local and feeder service to be provided within each of the subregions. Service provision policies of the local operators consistent with RMP policies coupled with the scale of travel demand would dictate type of equipment to be used.

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REGIONAL MOBILITY PLAN

Comment: **Mass Transportation**

- 1) Light rail should be emphasized in place of automobile.
- 2) State legislation should be enacted to encourage and discourage auto use, especially single passenger use.

Commentor: **Sierra Club, San Geronio Chapter (10/26/88)**

- Response:**
- 1) The AQMP and RMP call for extensive transit development in corridors of High Capacity Demand and Medium Capacity Demand. Prop. A in Los Angeles County funds development of both heavy and light rail systems. Extensions of these corridors have been proposed in AQMP and RMP without specifying mode, to allow planning process to select most effective means of meeting demand, or to stage development over time, increasing capacities with new modes as these may be required. For instance, bus transitways now planned are designed to be convertible to rail should demand develop to require additional capacity.
 - 2) The entire thrust of AQMP control measures and RMP is to reduce single occupancy vehicle use through favoring of HOV lanes, transit and trip reduction strategies. Plans are legally enforceable, so that added legislation on this point may be unnecessary, although monitoring of implementation results will point out where additional legislation may be required.

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REGIONAL MOBILITY PLAN

Comment: **Mixed-Flow Improvements**

Regarding Rte.86.

Commentor: **Imperial County Planning Department (10/13/88)**

Response: Figure V-4 on p. V-17 does not specify the precise alignment for the southern portion of Rte. 86. The plan calls for widening improvements along the corridor. Alignment questions are being addressed in a separate study with Caltrans.

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REGIONAL MOBILITY PLAN

Comment: Non-Motorized Transportation Program

An additional strategy that should be used in the AQMP is the creation of bicycle lanes.

**Commentor: The Sierra Club, Angeles Chapter, Air Quality Subcommittee
(10/24/88)**

Response: The RMP includes a Non-Motorized Transportation Program (p. V-44) that calls for specific actions to encourage the development and/or enhancement of bikeway facilities. Although a separate document, the Mobility Plan is also an element of the AQMP. Specific actions contained in the Mobility Plan will be implemented along with the land use and energy conservation measures as proposed in the AQMP.

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REGIONAL MOBILITY PLAN

Comment: Public Outreach

There is a need for the final AQMP to recognize and integrate local policies and priorities, especially those of county-wide agencies, such as the Orange County Transportation Commission, and locally-adopted projects, which directly affect local cities.

Commentor: City of Westminster (08/29/88)

Response: The RMP recognizes and integrates local policies and priorities in the system management section (pp. V-12 - V-14) with specific actions reflecting the Orange County Transportation Commission's superstreet program and the signal coordination program. The Local Streets and Roads section (p. V-18) and the System of Regional Significance (pp. V-48 - V-49) also identify programs for local communities.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Railroad Electrification

Regarding railroad electrification: "Yes! If electrification can be done without creating another 4 Corners pollution problem at the generating plant.

Commentor: Gilbert Bishop (10/22/88)

Response: Electrification of railroads will of necessity require the generation of additional electricity. Additional electricity will come from generating plants outside of the air basin, and for the most part, these utilities will not be burning coal as at 4 Corners. As stated in the measure, however, the electrification of railroads will require extensive planning and engineering.

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REGIONAL MOBILITY PLAN

Comment: **System Management Program**

Signal Synchronization, intersection channelization, and ramp metering should be encouraged as project mitigation measures... Any fee programs (should) include all employment generating activities that cumulatively affect traffic.

Commentor: **The Irvine Company (10/27/88)**

Response: Signal synchronization, intersection channelization, and ramp metering cannot be limited to project mitigation applications only. No fee programs are included in this measure, but could be enacted by local government as an implementation.

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REGIONAL MOBILITY PLAN

Comment: Transit Program

Commentor: Ryan Snyder (10/22/88)

Response: The AQMP and RMP incorporate the LA County Prop A Rail system, approved by the voters. RMP, and hence AQMP, extend corridors of heavy demand or medium demand beyond Prop A system, but do not specify technology, leaving that to further planning studies. Options are therefore left for either HOV lanes, light rail, heavy rail or other, newer technologies to be selected depending on capacity requirements in each corridor, system requirements and funding availability, as well as to stage the development if that appears appropriate. Many corridors already have substantial demands in excess of their capacity, and projections show that all those proposed for medium or high capacity transit will require substantial transit beyond carpooling in the HOV lanes.

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Comment: Transit Program

F - Transit Fixed Rail System

Commentor: City of Orange (10/26/88)

Response: The September AQMP reflects the preferred Strategy of the Regional Mobility Plan which defines corridors for transit development as either "High Capacity" or "Medium Capacity" without specification of technology for meeting projected demand (RMP pp V-21 - V23).

With regard to impact of linehaul transit on job/housing balance, demand already exists for travel over long distances.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

Commentor: **Barbara Mauz (10/27/88)**

Response: The AQMP requires employers with 100 employees at a single site to establish pooling arrangements, with the threshold dropping to 50 and later possibly 25 employees.

Proposition A in Los Angeles County was passed by voters to create a rail transit system which would be able to avoid the traffic which inhibits effective bus transit. The Regional Mobility Plan, and through it the Air Plan, proposes a significant improvement in transit, both rail and bus, building on the Proposition A system. Putting more buses on the roads without reducing existing congestion would not be effective, funds are therefore needed for both sides of the transit system.

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REGIONAL MOBILITY PLAN

Comment: Transit Program

Additional capacity in the RMP should be more strictly limited to light rail transit to induce a mode switch away from the automobile. The use of cleaner burning alternative fuels should be pursued with caution, because they are still carbon dioxide producing fuels which add to the world-wide greenhouse effect. Highway expenditures should be restricted to maintenance, not capacity expansion.

Commentor: Sierra Club, San Geronio Chapter (10/26/88)

Response: The AQMP/RMP offers both transit and highway capacity improvements which are planned to increase transit mode split and improve, where possible, vehicle operating characteristics to reduce emissions.

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REGIONAL MOBILITY PLAN

Comment: Transit Program

1. SCAQMD supports designation of transit as a key element of RMP.
2. Trip reduction goals appear overly optimistic.
3. Local land use and general plans need to reflect specific requirements for transit.
4. Financial plans should provide a detailed alternative analysis, including specific accounting of automobile use costs.

Commentor: Alan F. Pegg, General Manager, Southern California Rapid Transit District (11/3/88)

Response:

1. General support, no comment required.
2. Trip reduction goals have been set by policy, and are required to meet air quality standards. Lower goals would make attainment harder to achieve, and delay it beyond target dates.

In the event that trip reduction goals cannot be achieved, the required periodic update of the RMP will provide the necessary lead time and opportunity to make the necessary adjustments in the strategy.

3. Adoption of local land use and circulation plan amendments in accordance with the RMP is called for (pp. V-26, 27).
4. The RMP is required to examine public costs of the AQMP. This has been done in the Financial Strategy. It is recognized that all plans carry with them substantial private costs, and in transportation, these may be significant. However, there is no recognized body of work which would allow an easy calculation of these costs for purposes of comparison. SCAG will be examining the full costs of plan implementation under the financial element and transit elements of the RMP.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

Use Freeway center for light

Commentor: **Coalition Against the Pipeline (10/22/88)**

Response: Transit corridors are identified in the RMP, and incorporated into the AQMP. (p. V-21, Fig. V-6). Corridors are intended to move persons, freeway locations for transit often avoid major centers, contrary to plan policies. Technologies are not specified, except to indicate capacity requirements projected.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

1. Transit and transportation planning should be accomplished in concert with city and county General Plans and their respective Redevelopment Agencies.
2. Caltrans operates the traffic signals in the vicinity of freeway interchanges which local jurisdictions coordinate their own... The County supports the coordination between the two systems as a means to relieve arterial congestion in the vicinity of freeways.
3. At the request of Orange County Transportation Commission (OCTC), Caltrans has committed to monitoring the freeway system more closely in order to remove incidents more rapidly.

Commentor: **Orange County Board of Supervisors (10/27/88)**

Response: 1. Transit improvements:

The compatibility of city and county general plans with regional plans is very important. RMP actions call for county and local governments to take a variety of actions in coordination with other agencies to facilitate transit development, including land use and circulation plan adjustments.

2. Traffic Flow Improvements

Progress in Orange County to further the ramp metering and signal synchronization provisions of the measure are very positive. The efforts of the Signal Roundtable and the member agencies, including SCAG, are directly on target for resolving an important difficulty.

3. Nonrecurrent congestion

Besides the closer monitoring of the freeway system by Caltrans and the installation of the improved call-box system, current development of a Traffic Operations Center and Incident Management Team at Caltrans District 12 will provide an improved geographic distribution of incident management resources. Much more work, however, will be required to further reduce the impacts of nonrecurrent congestion.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

Support for Transit, Smart Streets, Truck Delivery Rescheduling

Commentor: **Dr. Newell Johnson (10/26/88)**

Response: These comments support the actions proposed in the Regional Mobility Plan.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

Support for linehaul/feeder bus system, mandatory carpooling, staggered work hours, mandatory parking charges.

Commentor: **William Mondschein (10/27/88)**

Response: These comments express support for transit element of the RMP.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

The Region requires a unified public transportation system to move people around with short headways.

Commentor: **Edward Waldheim (10/24/88)**

Response: The Regional Mobility Plan, as incorporated into the AQMP, proposes a transportation system linking all major activity centers using either high capacity or medium capacity modes, supported by local and feeder service to achieve frequent and ubiquitous transit service. The plan recognizes the need to integrate transit into a functioning system to achieve full benefits of individual lines, routes. (pp V-21 through V-27)

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Comment: **Transit Program**

There is a need for a regional mass transit system for commuters.

Commentor: **Valley Industry and Commerce Association (VICA) (10/26/88)**

Response: Support for expanded regional mass transit system as proposed in RMP. No response required.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

We should encourage increased traffic signalization.

Commentor: **Coalition Against the Pipeline (CAP) (10/22/88)**

Response: Transit corridors are identified in the RMP, and incorporated into the AQMP. (p. V-21, Fig. V-6). Corridors are intended to move persons, freeway locations for transit often avoid major centers, contrary to plan policies. Technologies are not specified, except to indicate capacity requirements projected.

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REGIONAL MOBILITY PLAN

Comment: **Transit Program**

Why not publicize the benefits of freeway construction?

Commentor: **Automobile Club of Southern California (11/3/88)**

Response: In order to achieve mandated standards, the implementation of all transportation control measures will be essential.

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REGIONAL MOBILITY PLAN

Comment: Transportation Demand Management Program

Congestion charges should be given greater emphasis as a demand management measure.

Commentors: Ward Elliot at the Claremont City Council/Community Leaders Meeting (09/12/88)

Response: The RMP's Demand Management Program (p. V-11) includes two actions for user fees. The financial program of the RMP includes peak period user fees as a means to raise capital shortfalls.

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REGIONAL MOBILITY PLAN

Comment: **Transportation Demand Management Program**

The growth of transportation sources will remain a problem which will require increased efforts by the SCAQMD, as well as industry and all levels of government, to expand and adopt strategies such as ridesharing, transit improvement, HOV facilities and others.

Commentor: **American Lung Association (10/24/88)**

Response: Priorities for transit and HOV expenditures are reflected in the constrained and unconstrained programs of the Draft RMP. Priorities for ridesharing programs are identified in the time frames for implementation of the Demand Management Section of the Draft Regional Mobility Plan.

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REGIONAL MOBILITY PLAN

Comment: **Transportation Demand Management Program**

We support efforts to decrease truck traffic during peak hours.

Commentor: **Orange County League of Women Voters (10/27/88)**

Response: The California Air Resources Board is responsible for establishing tail-pipe emissions standards for trucks and busses.

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REGIONAL MOBILITY PLAN

Comments: Transportation Demand Management Program

1. The proposed AQMP is based upon the development of technology which, at this time, may be technologically feasible but economically impractical. How can we rely on technological changes which may not be implemented if the costs aren't effective?
2. The AQMP identifies many goals without provision of implementation measures. for instance, what assurance is there that vehicles capable of being powered by either methanol or electricity will be produced by the market of satisfactory quality and quantity to meet this goal? If this is possible, will the vehicles be used outside the air basin? if not, how can they be used for long distance travel by vehicles in interstate commerce? And finally, how can we control non-clean fuel cars (i.e. tourism, interstate commerce) from entering the basin?

Commentor: City of Tustin (10/26/88)

- Response:**
1. See actions regarding telecommunications implementation within the Transportation Demand Management Section of the RMP (Appendix IV-G).
 2. This comment reflects the classic nature of the "chicken & egg" dilemma. through the more mandatory programs for the purchase of specifically fueled vehicles; or the requirement of the installation of specific fuel facilities through local or Air Pollution Control District (APCD) permits, a market for both vehicles and fuel can be achieved. The two various plans cannot hope to effect the markets outside of the region or the Basin directly.

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REGIONAL MOBILITY PLAN

Comment: Transportation Demand Management Program

Avoidance of peak hours may be unfeasible for trucks traveling long distances. Adoption of General Plan Amendments, local ordinances, and Memorandum's of Understanding (MOU) by July 1, 1990 is unrealistic.

Commentor: Larry Agran, Mayor (10/25/88)

Response: In addressing truck delivery schedules during peak periods, public agencies and local government need to look more closely at such issues as time sensitive deliveries in the construction business, perishable goods and other goods which may require long distance travel as well as site specific activity which impacts trucks.

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REGIONAL MOBILITY PLAN

Comment: Transportation Demand Management (Ridesharing)

It's going to be very difficult to get many Warner Center employees to rideshare or take buses because buildings are placed too far apart.

Commentor: Mr. Ryan Snyder (10/22/88)

Response: As in other areas of existing development, the Warner Center Association is spearheading the development of a Transportation Management Organization to explore (among other programs) the planning and designing of an internal circulation and shuttle bus system to alleviate rideshare barriers caused by building spacing.

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REGIONAL MOBILITY PLAN

Comment: **Transportation Demand Management Program**

Has anyone looked at the impact of 160,000 people in carpools in terms of freeway capacity...?

Commentor: **VICA (10/31/88)**

Response: Yes. The HOV Elements adds over 1,200 lane miles of exclusive HOV facilities to accommodate the increased demand in carpools. Further, both the HOV and the Mixed-flow programs were developed to meet mobility needs remaining after the implementation of the growth management, system management, and demand management strategies, and in the context of greatly enhanced transit service.

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REGIONAL MOBILITY PLAN

Comment: Transportation Demand Management Program

Congestion charges would enhance expanded Regulation XV and parking surcharges drastically. Incentives to encourage jitneys are needed.

Commentor: Coalition for Clean Air (10/27/88)

Response: The Demand Management Program of the Draft Regional Mobility Plan (Appendix IV-H) includes two actions to establish user fees or congestion charges (page V-11).

The policy element of the Draft Regional Mobility Plan includes the following policy statements which would support the use of a jitney type of service:

SCAG will continue to support competitive bidding for public transit projects and programs. (page IV-3).

Expansion of private commuter/express bus operations will be supported. (page IV-4).

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REGIONAL MOBILITY PLAN

Comment: **Transportation Demand Management Program/Transit Program**

City, County and Redevelopment Agency Plans should be included in implementation of transit, air quality elements.

Commentor: **Orange County Board of Supervisors (10/27/88)**

Response: RMP calls for bringing local (County and City) general plans into conformity with its provisions. (p. V-26).

RMP also calls for locally adopted Air Quality Elements of General Plans (p. V-9)

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REGIONAL MOBILITY PLAN

Comment: Transportation Demand Management Program

Toll road concept should be implements to fund new routes, as an alternative to slow or nonexistent government funding. Developers who contribute to freeway capacity enhancements that would serve their projects should be given air quality mitigation credit for their efforts. We recommend that toll funding be specified as an alternative funding source, and that mitigation credits be included as desirable incentives to such funding and construction.

Commentor: The Irvine Company (10/27/88)

Response: The financial program of the RMP includes the Orange County Toll Road and Developer fee programs in the development of the constrained program of mixed flow and HOV improvements. The financial program also includes the choice of additional tolls to be levied on specified percentages of the VMT in each county to raise highway capitol revenues. These would be applied during peak periods as congestion charges (p. VI-6). The Demand Management program include an action category of User Fees (p. V-11) which identifies a program to study user fees and then a second program to move the study results into demonstration programs.

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Comment: Transportation Demand Management Program

The use of user fees should be considered.

Commentor: Sierra Club - Angeles Chapter (10/15/88)

Response: The Draft RMP includes two actions to implement user fees in the Demand Management Program (p. V-11). The financial element of the Draft RMP recommends the application of these fees to raise revenues for the Capitol expenses of the Demand Management Program and as a possible means of raising highway capitol (pp. VI-6 and VI-7).

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REGIONAL MOBILITY PLAN

Comment: **User Fees/Transit Subsidy**

Support for subsidized transit, Joint Power Authority (JPA) for Regional Transit System.

Commentor: **Orange County League of Women Voters (10/27/88)**

Responses: These comments support the RMP on two points:

1. Use of gas taxes/other highway user funds (i.e. parking fees) to pay for transit. These funds would also be directed to support smog controls.
2. The need for restructuring transit organization to deal with inter-county movements.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Aircraft and Ground Service Vehicles**

Compliance with the measure on Pilot Fuel Check Vapor Recovery would likely be low without an incentive, and could pose a potential fire hazard.

Commentor: **County of Los Angeles - Chief Administrative Office (10/13/88)**

Response: The comment is apparently based upon a previous draft version of the measure. The most current version is now in further study category because of these and other reasons.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Aircraft and Ground Service Vehicles**

The AQMP should require less polluting, newer aircraft.

Commentor: **League of Women Voters Regional Task Force (10/24/88)**

Response: This is required in the measure Replacement of High-Emitting Aircraft.

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Comment: **Aircraft and Ground Service Vehicles**

The measure on Vapor Recovery for General Aviation Refueling would require a period of underground construction which could disrupt airport operations, and would require double hoses which would make fueling aircraft at a distance more cumbersome, resulting in increased county liability.

Commentor: **County of Los Angeles - Chief Administrative Office (10/13/88)**

Response: The potential disruption of airport operations from underground construction would be temporary in nature. It is not seen as a potentially significant problem, based upon recent conversations with general aviation airport engineers and on-site inspection of fueling facilities. The potential problems posed by cumbersome double hoses should be able to be overcome with the use of lightweight materials in the hose and nozzle apparatus, which are currently available and in use at some automobile fueling stations.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Aircraft and Ground Service Vehicles**

There is concern about impacts of proposals for the expansion of Palmdale Airport on the air quality of the Antelope Valley.

Commentor: **Antelope Valley Board of Trade (08/23/88)**

Response: Before the airport proposal can proceed, it must first obtain an air quality permit from the State Air Resources Board. The City of Los Angeles Department of Airports has contracted with SCAG to prepare an air quality plan for the airport to satisfy State requirements for air quality certification. The study, which is currently being finalized, recommends air quality measures for mitigating potential air quality impacts of the airport. The Department of Airports would be required to commit to implement these measures as a condition of air quality certification by the State.

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Comment: **Aircraft and Ground Service Vehicles**

The Draft AQMP may not adequately address emissions from aircraft, since the impact of a major increase in operations at Ontario Airport, currently proposed by the city of Los Angeles Department of Airports, may not have been addressed.

Commentor: **City of Chino (10/26/88)**

Response: The total air carrier operations currently being proposed (180,000 vs. the previous 125,000) was assessed as part of the AQMP aviation emissions analysis.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Aircraft and Ground Service Vehicles

The measure on Aircraft and Ground Service Vehicles, which calls for converting ground service vehicles to electricity and alternative fuels, would result in increased consumption of electricity, and large capital investments for new ground equipment and possibly new terminal facilities.

Commentor: Air Transport Association of America (10/15/88)

Response: The increased consumption of electricity would result in no additional emissions in the Basin, since excess power needs required by the region's electrical grid system are procured from sources outside the Basin. New capital investments required by this measure would be eligible for reimbursement through the Federal Airport Improvement Program (AIP).

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Comment: Aircraft and Ground Service Vehicles

The measure on Replacement of High-Emitting Aircraft, which calls for the complete phase-out of (FAR) p. 36 aircraft and transition to all Stage III aircraft by January 1992, is cost prohibitive and could not be implemented.

Commentor: Air Transport Association of America (10/15/88)

Response: The measure originally recommended the year 2000 as the deadline for the complete transitioning to an all-Stage III fleet, and this date was mistakenly changed to 1992. The date will be changed back to 2000. It is felt that this is sufficient time for airlines to amortize their existing investments in Stage II aircraft and completely convert to Stage III technology with minimal economic disruption.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Aircraft and Ground Service Vehicles

The measure on Aircraft and Ground Service Vehicles, which would propose controls on aircraft emissions, would result in increased costs such as through the purchase of high speed tractors, redesign of aircraft landing gear, and engine modification or replacement. It would also result in major changes in airline flight schedules and operations, and time delays.

Commentor: Air Transport Association of America (10/15/88)

Response: This measure would not require any particular tactic to be implemented by the airport operator, such as towing aircraft, since the airport operator would have the flexibility to choose the emission reduction tactics which he feels can be most cost-effectively implemented at his airport, as long as he can demonstrate that emission reduction targets would be met. Tactics with questionable feasibility could either be omitted from the emission reduction plan, or be further explored through demonstration projects. Time delays and major changes in flight schedules would not necessarily result from the measure; in fact, delays could be reduced since one of the objectives of the measure is to reduce the amount of time airplanes spend idling in queues.

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**RESPONSE TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Airport Ground Access

More emphasis should be placed on airport operations as a source of present and future air quality impacts. The planned expansion of LAX from 40 to 65 million air passengers will negate the effect of the vehicle trip reduction measures outlines.

Commentor: City of El Segundo (10/24/88)

Response: It is the intent of the draft AQMP aviation measures to mitigate the air quality impacts associated with future airport growth. This is consistent with adopted SCAG aviation policy, which seeks to maintain existing policy constraints at air carrier airports in the region, except where relevant air quality, noise, and ground access impacts are mitigated. The aviation ground access measure would be enforced by the SCAQMD through its indirect source review authority. The SCAQMD would be responsible for setting a target for measure compliance for each airport, which could be set at the level of stringency needed to offset planned expansions in air service. The SCAQMD's indirect source authority allows the District to set and enforce standards for emissions reductions from indirect sources, but not to directly regulate the growth of those sources.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Airport Ground Access**

The John Wayne/Orange County Airport administration has been making significant progress in implementing clean air measures, including constructing high-speed taxiways, encouraging the reduction of aircraft engine usage during taxiing and idling, controlling departure times, and installing centralized electrical power and hydrant fueling in the new terminal.

Commentor: **Orange County Board of Supervisors (10/27/88)**

Response: These efforts are acknowledged as being consistent with AQMP implementation, and the efforts of John Wayne/Orange County Airport administration to reduce emissions at the airport are commended.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Airport Ground Access

The measure on Airport Ground Access would result in trip reduction plans which would affect the ability of passengers and airline employees to gain access to the airport facilities.

Commentor: Airline Transport Association of America (10/25/88)

Response: The measure would increase the ability of both air passengers and airport employees to access airports since it would result in reduced traffic congestion around airports.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Airport Ground Access**

The noise impacts associated with shifting aircraft departures to off-peak hours, thereby spreading airport-related traffic over the entire day needs to be included in this analysis. (Chapter 4, Section 4-5, Noise).

Commentor: **City of Claremont (11/27/88)**

Response: Shifting aircraft departures to off-peak hours is an option available to airport operators to include in their ground access plans in compliance with the measure Airport Ground Access, and would not necessarily be implemented at each airport. In any case, the Community Noise Equivalent Level (CNEL) measurement required in California for measuring noise impacts is a 24-hour standard, and although shifting flights to off-peak hours would spread aircraft noise more evenly throughout the day, it would not affect the CNEL measurement (unless the flights are shifted to nighttime hours).

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TRANSPORTATION, LAND USE & CONTROL MEASURES

Comment: **Alternative Work Schedules and Locations/Parking Management**

- 1) Government should take the lead in arranging work schedules so that everybody doesn't come to work at the same time.
- 2) Use carrot and stick approaches to get people to go along with travel behavior changes, ie: reduced parking fees, entertainment coupons. Involve the private sector.

Commentor: **Mr. Fred Harris (10/26/88)**

Response: 1) Appendix IV-G., Measure 1 -- Alternative Work Schedules and Locations -- includes public sectors leadership to implement stated programs on pages 56, 57.

2) TCM include a variety of "carrot and stick" approaches as means to obtain trip and air pollutant emission reductions. Measure 2.b. -- Parking Management -- includes, for instance parking surcharges for single occupant vehicles, and discounts for multiple occupant vehicles. Surcharge revenues are used to finance related transit and other trip reduction efforts, further enhancing the economic attractiveness of these programs. Since entertainment coupons would reduce funding for needed transportation improvements (including new facilities), such are not considered a variable offering.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: **Alternative Work Schedules and Locations**

How can local government agencies require telecommuting and teleconferencing, when the results of the SCAG pilot program are not very positive and the limitations are great? It would be difficult to require when the appropriate legislation and tax incentives do not yet exist?

Commentor: **City of Irvine (10/25/88)**

Response: It was found through the SCAG telecommuting project (ongoing) that significant levels of telecommuting will require a greater level of agency support in terms of the computers, modems, and software necessary to facilitate communication between a home or satellite center and the main office. That is also the experience of Pacific Bell where a program of roughly 1,000 telecommuters relies upon the loan of all necessary equipment to the home telecommuter. SCAG is currently developing a telecommuting program designed to meet the 20 percent work trip VMT reduction target through the use of satellite centers and the provision of sufficient equipment to meet the goal. Given the benefits of telecommuting to employers and employees, the only essential legislation is an indirect source rule to assure sufficient efforts to meet the 20 percent goal.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Alternative Work Schedules and Locations

The discussion of research needs lends little justification to the assumption of 20% work trips being reduced due to telecommuting and teleconferencing.

Commentor: City of Irvine (10/25/88)

Response: The goal of the measure has been clarified to seek a 20 percent reduction in work trip emissions by 2010 through any combination of work trip elimination or trip reduction (e.g. through the use of satellite work centers). Only 6 percent of the total reductions are assumed to take place by 1994. Given the rapid advances and cost reductions in such technologies as teleconferencing, facsimile transmission, videophones, and personal computers, there are ample reasons to believe that employers and employees will rapidly increase their use of these technologies to reduce time wasted during commuting, increase productivity, and save on office space requirements. Increased telecommuting will also be sought under indirect source regulations (such as Regulation XV). For employers, telecommuting will be one of the most cost-effective means of reaching the trip reduction targets in their indirect source plans.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Alternative Work Schedules and Locations

The implementation action specified for telecommuting is not clear as to whether the private sector or government employees are to be regulated by the trip reduction ordinance requiring employees to reduce 20% of work trips using telecommunications strategies.

Commentor: City of West Hollywood (10/18/88)

Response: Both the private sector and government employees are covered by proposed control methods to reduce work trips by 20 percent through the use of telecommunications.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Alternative Work Schedules and Locations

Telecommuting is a better solution in cities where the employees are predominately office of information workers. In West Hollywood entertainment, restaurant, and small retail uses predominate, so other strategies must be employed.

Commentor: City of West Hollywood (10/27/88)

Response: It should not be assumed that the measure will require all employers to use the same combination of trip reduction strategies or reach the same trip reduction goals. Certainly, some firms are more suited to telecommuting than others and it is assumed that in implementing an indirect source rule, it will be necessary to both: (1) allow employers some flexibility in choosing the appropriate combination of trip reduction strategies for their individual situation, and (2) provide some flexibility in setting a firm's trip reduction targets based upon individual circumstances. This clarifying language has been incorporated into the AQMP.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: **Alternative Work Schedules and Locations**

Given the heavy emphasis on work trip reduction from telecommuting, actual future needs for transit or other mobility alternatives may be even higher than projected in the plan, if this trip reduction goal is not achieved.

Commentor: **Southern California Rapid Transit District (11/3/88)**

Response: If any of the goals of the AQMP measures are not met, there will be a need to find other equivalent emission reductions.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: **Alternative Work Schedules and Locations**

The discussion on telecommuting needs to be expanded to include data on the adverse social impacts on those individuals who do not want to work at home or in satellite work centers.

Commentor: **City of Claremont (10/27/88)**

Response: Most of the telecommuting that will occur will be part-time and the measure has been modified to clarify this point. There is no basis in the literature to state that there are adverse social impacts from part-time telecommuting from home or satellite work centers, particularly when an agency or company is under a mandate to increase telecommuting.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Cost/Benefit Analysis**

There is no breakdown on the cost or yield of each of the measures within the mode shift strategies.

Commentor: **Coalition for Clean Air (10/27/88)**

Response: Regarding the cost of control measures: see Cost\Benefit Analysis section in Chapter VII of Appendix IV-G.

Regarding yield: the mode shift strategies operate together, and are dependent for emission reductions on each other. It is not possible to isolate the ability of any one measure to reduce transportation impacts, given this synergistic relationship.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Diverting Port-Related Truck Traffic to Rail

Trucks and Buses: The League favors measures to encourage greater use of railroads for freight hauling.

Commentor: League of Women Voters, Southern California Regional Task Force (9/15/88)

Response: This issue is addressed under Measure 3b. Diverting Port-Related Truck Traffic to Rail. On page 130, under the heading "Implementation Assumptions For Goods Movement Strategies", paragraph four shows "The savings in truck emissions would be partially offset by increases in train emissions". Assuming double stack operations, it is assumed that the equivalent of 200 40-foot containers would be loaded on a train. This translates into 600 additional train trips per year in 2000 and 2,250 train trips in 2010. Assuming an average of 23 miles at 20 miles per hour, each train would take roughly 1.15 hours to travel from the ports to the downtown L.A. area. The resulting increases in train hours of operation would be 690 per year in 2000 and 2,598 per year in 2010. Each train is assumed to have four locomotives.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Employer Rideshare & Transit Incentives

Employee Rideshare and Transit Incentives.....This control measure would significantly impact the CHC's and PHC's as there is a need for public Health Professionals to commute through the day. Hence, our participation in thus program may have some limitations.

Commentor: County of Los Angeles (10/13/88)

Response: The comments covering the Employee Rideshare and Transit measures would not necessarily affect health professionals. Cemeters, such as the Public Works facility in Alhambra, the Engineering center on Vermont, or the Hall of Administration, would not be exempt. A recent comparison of transit use by county employees and nearby federal employees in the LA Central Business District indicated that count policies encouraged single occupant vehicle work trips.

Pedestrian malls, transit malls, and part time bans on traffic are used in Long Beach, Santa Monica, Hollywood, and Westwood. These auto use restrictions are designed to enhance safety, and protect a pleasant urban environment. The auto use restrictions should not impact access to County Hospitals in any way.

Costs for providing alternative access to special events will be passed on to the consumer, just as the cost of providing parking is usually passed on to the consumer at such events.

Merchants could experience either an increase or decrease in activity due to auto use restrictions.

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TRANSPORTATION, LAND USE AND CONTROL MEASURES

Comment: Employer Rideshare & Transit Incentives

If carpool and vanpool programs are structured on three or more riders, workers in our professional service-oriented economy may, because of varying work schedules, find it impossible to rideshare with two other workers. A focus on employer oriented carpooling is unfair.

Commentors: Mr. Steve Glazer (10/24/88)
Mr. Edward Waldheim (10/24/88)
Mr. Herbert Spencer (10/24/88)

Response: Although two person carpools may not be able to take full advantage of HOV lanes where available, significant personal as well as air quality and travel benefits are obtained. For other professional service-oriented employers/employees, or others who find ridesharing or transit not viable, effective trip reduction options include alternative work weeks (9/80, 4/40, 6/40 -- 4 weekdays plus one weekend day), telecommuting, and/or work-at-home.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: **Energy Conservation**

SCAG should use its influence on legislators at the federal level to promote energy conservation programs.

Commentor: **Air Quality Committee of the League of Women Voters Regional Task Force (10/22/88)**

Response: SCAG's legislative program includes the pursuit of state and federal legislation that will implement the energy conservation measures in both this and previous AQMPs.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: **Freeway Capacity Enhancement**

Freeway capacity enhancement: This will be in direct conflict with the growth management goal of achieving a better J/H balance.

Commentor: **Chevron U.S.A., Inc. (10/26/88)**

Response: This has been a cause of concern but, on balance, the measure is necessary. Much of the current J/H imbalance is viewed as much more the result of economic conditions rather than of transportation conditions. Despite drastically declining mobility levels, cheaper housing to the east of downtown continues to induce workers to endure ever-increasing commute times. Local government actions to encourage more jobs in the housing rich areas and more housing in the job rich areas should alter this economic equation even in the face of any improved travel conditions resulting from this measure. Most people probably prefer to work near to where they live even if long-distance travel is made easier. Improved J/H balance as envisioned in the Plan will not, moreover, eliminate the practice of long-distance commuting. Many short trips also use the freeway. Accordingly, both air quality and mobility concerns point to the need to enhance the capacity of the freeway and highway system.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Future Study Issues

The AQMP would be more realistic and less destructive to the region's economy if time/place implementation of some controls were explored so as to concentrate the most drastic strategies for those portions of the year with the worst smog episodes.

Commentor: Minority Coalition for Responsible Growth (10/21/88)

Response: We need the strategies currently proposed in the AQMP to be implemented throughout the region, throughout the year. Even that leaves no margin for errors and uncertainties. SCAG has been exploring additional controls for time/place implementation. This requires as an initial step, a modelling study to examine the potential for pollution reduction, and policy discussion to examine the feasibility of such measures.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Future Study Issues

We don't approve of time and place controls as we understand them. Pollution migrates and eventually damages the total environment, not just one area.

Commentor: Dr. and Mrs. Newell Johnson (10/26/88)

Response: Time and Place controls are strategies to redistribute emissions (Hydrocarbons, Oxides of Nitrogen) so that they generate smaller amounts of pollution (Ozone) than they otherwise would. Emissions from all areas and at all times do not have the same contribution to production of smog.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: **Future Study Issues**

Is it necessary to implement restrictive emission control measures all year long, since air pollution within Riverside County is generally most troublesome from June through September.

Commentor: **Riverside County Transportation Commission (10/26/88)**

Response: Our goal as established by law is to attain the state and national air quality standards, not to abate smog when it is generally most troublesome. In 1987 for example, these standards were exceeded in Hemet from April to October, in Norco from March to November, in Perris and in Riverside-Rubidoux from March to October. Therefore, we need the strategies currently proposed in the AQMP to be implemented throughout the region, throughout the year. Even that leaves no margin for error or uncertainty. SCAG has been exploring additional controls for time/place implementation. This requires as an initial step, a modelling study to examine the potential for pollution reduction, and policy discussion to examine the feasibility of such measures.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Future Study Issues

The CEC is considering seeking additional (PVEA) funds to add to the Small School Districts Program... Would substantially help to reduce emissions from school buses. (System management of School Bus Fleets.)

Commentor: California Energy Commission (10/27/88)

Response: Please keep SCAG apprised of this program.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Future Study Issues

The CEC recommends that Caltrans, SCAQMD, SCAG, and local government transportation agencies coordinate a program to carry out research and demonstration of advance technologies and incident management program improvements. (Non-recurring congestion)

Commentor: California Energy Commission (10/27/88)

Response: SCAG's 1989-90 Overall Work Program, currently under development, will contain programs directly responding to these suggestions.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Growth Management**

- 1) The AQMP should reduce vehicle miles travelled requiring employers to hire employees who live within a 10 mile home-to-work commute distance.
- 2) Implement gasoline rationing based on job usage.

Commentor: **Marc Drehsen (10/07/88)**

- Response:**
- 1) Balancing work and residence locations as a means to reduce commuting vehicle miles traveled is incorporated in Appendix IV-G, page 224.
 - 2) Although included as a possible "Regional Regulation" for the Environmental Protection Agency, Appendix IV-G does not identify commitments to seek implementation of gasoline rationing in the AQMP Commitment Schedule at this time.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **High Speed Rail**

P. 4-7-6. No evidence is provided that the technology required for high speed rail is available or that construction is possible within the time frame that the plan allows --- even if such a system were available, construction would have to commence, at the very latest, by 1992 in time to meet the implementation goal of 2010.

Commentor: **Western Oil and Gas Association (10/27)**

Response: High speed rail technologies are already available in several foreign countries, including the Japanese Shinkansen system, the French TGV, and the West German ICE. The Japanese system has been in service for several decades, and the French system has been in successful operation for several years.

In this country, high speed rail is under consideration in a number of states, including Florida, Texas, Ohio, Pennsylvania, and Michigan. The most advanced of these projects is the Florida High Speed Rail Transportation Commission's plan for a line linking Miami and Tampa.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comments: Implementation Feasibility

1. Reasonability of AQMP: Requires technology that doesn't exist.
2. Costs are underestimated. (\$9 billion short for transportation control measures (TCM))...
3. Want list of lifestyle changes required to achieve AQMP goals.

Commentors: Ontario Chamber of Commerce (10/05/88)
San Bernardino Chamber of Commerce (10/05/88)
Larry Walker San Bernardino Association of Governments
Executive Committee Member (10/05/88)

Response:

1. Time frames for implementation of TCM reflect potential availability of technologies. Telecommunications technologies currently exist.
2. Capitol costs for TCM's found in the Draft RMP (Appendix IV-H) for the twenty year period are estimated at \$57 million. Annual operating and maintenance costs are estimated at \$4,790 million. Chapter VI of the Mobility Plan details the revenues and costs and methods to raise capital shortfalls.
3. SCAG and the SCAQMD have begun a socio-economic impact analysis of the demand management measures which will identify lifestyle changes.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Implementation Feasibility

....There is a need for contingency planning to deal with non-attainment air quality standards due to the failure to successfully develop Tier II and Tier III technologies.

....Would also like to see an incentive program aimed at providing rebates for electric vehicles (EV). "I propose that a surcharge on gasoline powered vehicles could be used to provide rebates to purchasers of EV's. I would also like to see a mileage based annual auto registration fee to discourage automobile use".

....More rail lines than the AQMP contains should be considered. This commitment to additional rail is partly a response to the need for more backup contingencies, if Tier II and Tier III technologies are not workable.

Commentor: Sierra Club - Los Angeles Chapter, Steve Glaser (10/26/88)

Response: Concern over successful implementation of proposed control measures will require careful monitoring. Revision and updating of control measures may be necessary to achieve air quality standards.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Mode Shift Strategies

Don't force people to carpool; foster increased use of carpools, vanpools and mass transit; stress use of incentives; provide child care at job sites; include enforcement provisions.

Commentors: (Received on various dates)

Shell Oil Company, Shell Chemical Company

Ms. Barbara Mauz

Mr. A Jabbaur

Western Oil and Association

League of Women Voters of Orange County

Ms. Shirley Meddick

Mr. Scott Anderson

Mr. Jordon Torgerson

Elmer J. Digneo, Major, City of Loma Linda

Ms. Jill Klajic, Chair, Santa Clarita Civic Assoc.

Response:

The 1988 AQMP, Appendix IV-G -- Transportation, Land Use & ECM, specifically includes a group of "Mode Shift Strategies" (pp 74-113) to increase the use of all shared-ride modes. Neither employers nor employees are forced to carpool. A combination of incentive and regulatory-based approaches is identified. Provision of job site related child care facilities is an issue for employers (public and private) to consider outside the AQMP process.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Nonrecurrent Congestion Relief**

Should require trucks to move out of traffic after accident; tow trucks should be available at more frequent intervals; security is a problem for night deliveries; accidents happen on ramps not freeways; voluntary programs are more effective than mandatory ones.

Commentor: **Richard Ahoman**

- Response:**
1. The nonrecurrent Congestion Measure includes among the control methods the implementation of refined law enforcement techniques and educational programs to inform drivers when driveable vehicles involved in accidents can legally be removed from the traffic lanes. The measure also includes improved tow vehicle service operations.
 2. Local governments will be called upon to consider adjusting policies and standards on evening deliveries in noise sensitive areas, as shippers and receivers will be called upon to develop improved equipment and practices to minimize potentially adverse impacts of night-time deliveries. In some areas, increased security will have to be addressed by local governments and by shippers and receivers.
 3. Accident data from CHP indicate that accidents happen on both ramps and on mainline freeways.
 4. When effective, voluntary programs are, indeed, preferable to regulation. Regulatory action becomes necessary when voluntary programs are not effective.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Parking Management

Elimination of free parking in non-residential areas may injure local economies.

Commentors: (Received on various dates)
City of Garden Grove, California,
City of Newport Beach, California
Mayor Richard Ackerman, Fullerton, California
City of Manhattan Beach, California

Response: Elimination of free parking, peak period on-street parking and other parking measures are designed to promote mode shift from single occupant automobile access to ridesharing and public transit. In order to avoid negative local area impacts, however, the mix of parking management strategies which a local government would adopt would be based on local conditions. AQMP, Appendix IV-G, Measure 2.b. -- Parking Management, is being revised based on comments to call on local governments to conduct a local parking management assessment as part of the air quality element development actions to be taken by each community. The specific set of parking management/supply options would be identified as a part of this effort through a local hearing and ordinance adoption process.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Parking Management

Special event centers should have several options available for mitigating impacts of centers operations.

Commentors: (Received on various dates)

City of Anaheim

Anaheim Stadium

O'Melvenly & Meyers

The Walt Disney Company

County of Los Angeles

City of Irvine

County of Orange, California

Knotts Berry Farm

Six Flags Magic Mountain

Response: Special event center parking measures are designed to promote mode shift from single occupant automobile access to ridesharing an public transit. In order to avoid negative impacts on center operations, however the mix of parking management strategies which a local government would adopt would be based on local conditions. AQMP, Appendix IV-G, Measures 2.b. -- Parking Management, has been revised to include a local governments' parking management assessment as a part of the air quality element development actions to be taken by each community. The specific set of special event parking management/supply options would be identified as a part of this effort through a local hearing and ordinance adoption process.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Parking Management**

Why are we waiting until 1994 to implement parking management plans which would support greater ridesharing activity?

Commentor: **Mr. Jeb Stuart (10/24/88)**

Response: In order to avoid negative impacts on local jurisdictions and business, Measure 2.b -- Parking Management includes a reasonable schedule for local governments to conduct a local parking management assessment. This assessment would support the parking-related air quality element actions to be taken by each community. Sufficient time is required to identify, consistent with local conditions, the specific set of parking management/supply options required in local ordinances.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Parking Management

Elimination of free parking in non-residential areas may injure local economies.

Commentors: (Received on various dates)
City of Garden Grove, California,
City of Newport Beach, California
Mayor Richard Ackerman, Fullerton, California
City of Manhattan Beach, California

Response: Elimination of free parking, peak period on-street parking and other parking measures are designed to promote mode shift from single occupant automobile access to ridesharing and public transit. In order to avoid negative local area impacts, however, the mix of parking management strategies which a local government would adopt would be based on local conditions. AQMP, Appendix IV-G, Measure 2.b. -- Parking Management, is being revised based on comments to call on local governments to conduct a local parking management assessment as part of the air quality element development actions to be taken by each community. The specific set of parking management/supply options would be identified as a part of this effort through a local hearing and ordinance adoption process.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Recycling

Recycling efforts may become much more costly, even prohibitive and may be abandoned by many operators because of other control measures that would make their operations too expensive. Therefore, the cited benefits and market for recycled materials are overstated.

Commentor: Western Oil and Gas Association (WOGA) (10/27/88)

Response: Since the recycling effort is directed toward the paper and glass industries, it would be helpful if representatives of those industries provided evidence of any potential impacts of other measures on the recycling measure.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comments: Ridesharing

- 1) Following studies of potential costs, benefits, and labor contractor requirements employers (public and private) should be allowed to choose the mix of alternative work schedules/locations and telecommunication strategies to meet specified targets. Small city staffs may be adversely affected. Who will implement?
- 2) Small employers should be allowed to choose the mix of mode shift strategies to achieve trip reduction targets. Extending Regulation XV to employers of 25 should occur only after the costs and benefits of the existing (100 employees) are evaluated; it will be very costly.
- 3) Local government parking management and supply must be coordinated if permanent air quality gains are to be realized.
- 4) County provided "essential service" employees may need exemption from trip reduction targets.
- 5) A 30% reduction in work trips is too optimistic.
- 6) On what data were the implementation assumptions for modified work schedules based?

Commentors: (Received on various dates)
The Irvine Company
Automobile Club of Southern California
County of Los Angeles
Mr. Don Blose
Mayor Richard Ackerman, Fullerton, California
California Energy Commission
City of Irvine
City of West Hollywood
Coalition for Clean Air
Western Oil and Gas Association
City of Manhattan Beach, California

County of Orange, California
Environmental Protection Consultants

- Response:**
- 1) Appendix IV-G specifies employee work trip reductions of 10% through alternative work weeks/flextime, and a 20% reduction of employee work trips through telecommunications/work-at-home strategies. As a planning document, the AQMP seeks to reduce overall employee commute work trips 30% by the year 2010. The specific options and/or mix of trip reduction strategies to be used will follow from a determination of anticipated costs and benefits and the result in development and adoption of local government ordinances, a county ordinance, an SCAQMD rule, or State/Federal action for state/federal employees. Public and private employers will be involved in the regulation development process.
 - 2) Following adoption of the AQMP, the SCAQMD rulemaking process includes a study phase in which careful analysis of expected feasibility, costs and benefits of proposed regulations. If extending SCAQMD's Regulation XV to small employers is determined to be necessary, it would include employer trip reduction strategy choice to meet Average Vehicle Ridership targets specified in each geographic area. The rulemaking process will include the participation of small employers as one means to minimize any associated financial impacts.
 - 3) AQMP, Appendix IV-G, Measure 2.b. -- Parking Management, calls for local governments to conduct a local parking management assessment as a part of the air quality element development actions to be taken by each community. The specific set of parking management/supply options would be identified as a part of this effort through a local city/county hearing and ordinance adoption process.
 - 4) Exemption of "essential service" employees from meeting specific trip reduction targets would be provided for on a case by case basis within each of the locally adopted ordinances.
 - 5) A 30% reduction in work trips is needed to achieve air pollutant emission reductions specified in the AQMP. Annual

(FRP) monitoring will determine if the reductions specified are too optimistic. Based on a yearly analysis of this data, modifications in future AQMP stratifies will be proposed as appropriate.

- 6) The AQMP, Appendix IV-G, (page 58) specifies the implementation assumptions for alternative work schedule strategies. They based on the need (consistent with the GMP) to achieve an overall 30% reduction mobile source ROG emissions by 2010.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Traffic Flow Improvements/Nonrecurrent Congestion Relief**

Regarding HOV lanes, transit improvements, non-recurrent congestion, etc.

Commentor: **Orange County Board of Supervisors (10/27/88)**

Response: 1. HOV lanes:

The actions of Orange County agencies to implement HOV lanes are very positive.

2. Transit improvements:

The compatibility of city and county general plans with regional plans is very important. Regional Mobility Plan actions call for county and local governments to take a variety of actions in coordination with other agencies to facilitate transit development, including land use and circulation plan adjustments.

3. Traffic Flow Improvements

Progress in Orange County to further the ramp metering and signal synchronization provisions of the measure are very positive. The efforts of the Signal Roundtable and the member agencies, including SCAG, are directly on target for resolving an important difficulty.

4. Nonrecurrent congestion

Besides the closer monitoring of the freeway system by Caltrans and the installation of the improved call-box system, current development of a Traffic Operations Center and Incident Management Team at Caltrans District 12 will provide and improve geographic distribution of incident management resources. Much more work, however, will be required to further reduce the impacts of nonrecurrent congestion.

5. Freeway Capacity

No response.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Traffic Flow Improvements**

Why not give greater opportunity to traffic flow improvement and non-recurrent congestion measure?

Commentor: **Automobile Club of Southern California (11/3/88)**

Response: In order to achieve mandated standards, the implementation of all transportation control measures will be essential.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Traffic Flow Improvements**

Difficulty re: intersection channelization

Commentor: **Caltrans, District 12 (10/25/88)**

Response: As contained in the measures, channelization and synchronization are not intended to cause traffic diversion. Channelization and, to some extent, synchronization are intended to increase the effective capacity of improved intersections. Hi-tech synchronization methods also allow much improved incident management. Traffic flow improvements should be coordinated with land use actions.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Traffic Flow Improvements

Specification of Automated Traffic Surveillance Air Control as the single option for the control of traffic signals.

Commentor: Precision Standard Time, Inc. (10/27/88)

Response: One of the principal advantages of the ATSAC or "similar signal control systems" is that, due to central computer control, remote over-ride to achieve signal timing and pattern charts are permitted, thus providing a powerful additional tool for incident management. Although fixed-time systems do not allow this flexibility, high-efficiency fixed-time signalization can be effectively synchronized to improve normal traffic flow.

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Comment: Traffic Flow Improvements

During special events, traffic control signals could be operated manually by an officer to prevent traffic problems.

Commentor: Private citizen who attended Riverside public hearing (10/26/88)

Response: Computerized signal systems, signal inter-connection, and improved signal timing and control are called for under the Transportation Systems Management section of the AQMP. Simply putting signals on "stop-and-go" cycle would probably have very little effect on overall air quality or emissions levels. Stop-and-go driving tends to increase emission levels, resulting in worse air quality.

Mechanical controls on light duty autos and trucks are the single most effective measure used to date to reduce emission levels from mobile sources. Changes in signalization techniques would not permit a change in this requirement.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Traffic Flow Improvements**

Why not give greater priority to traffic flow improvement and non-recurrent congestion measures?

Commentor: **Automobile Club of Southern California (11/3/88)**

Response: In order to achieve mandated standards, the implementation of all transportation control measures will be essential.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Transportation Construction Related Emissions**

What magnitude of PM10 emissions could result from Portland Concrete paving of the facilities envisions in measure 12.b., including in the transportation and handling of unmixed (P.C.C.) and during road maintenance?

Commentor: **Bryan Allen (10/24/88)**

Response: Data is not available to establish the benefit of this measure at the micro level requested.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Truck Dispatching, Rescheduling and Rerouting**

Conflicts with city policies on evening deliveries, impact noise sensitive areas.

Commentor: **George Stanton (10/27/88)**

Response: The possible banning of trucks during peak periods is only one of several options considered in this measure. Local governments will be called upon to consider adjusting policies and standards on evening deliveries in noise sensitive areas, as shippers and receivers will be called upon to develop improved equipment and practices to minimize potentially adverse impacts of night-time deliveries.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Truck Dispatching, Rescheduling and Rerouting**

Get diesels out of operation during daylight hours

Commentor: **Margaret Hagstrom (10/25/88)**

Response: The measure calls for the consideration of a number of options to reduce the traffic and air quality impacts of heavy duty truck operations, including possible operation restrictions during peak traffic periods. The benefits of such measures, however, will have to be weighed against the economic and noise/community impacts created by night-time truck operations, including deliveries in noise-sensitive areas. Many of those currently receiving goods by truck are not equipped or staffed to conduct shipping or receiving operations outside normal working hours. Implementation of this measure will require very careful weighing of impacts.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Truck Dispatching, Rescheduling and Rerouting

Get diesels out of operation during daylight hours

Commentor: Margaret Hagstrom (10/25/88)

Response: The measure calls for the consideration of a number of options to reduce the traffic and air quality impacts of heavy duty truck operations, including possible operation restrictions during peak traffic periods. The benefits of such measures, however, will have to be weighed against the economic and noise/community impacts created by night-time truck operations, including deliveries in noise-sensitive areas. Many of those currently receiving goods by truck are not equipped or staffed to conduct shipping or receiving operations outside normal working hours. Implementation of this measure will require very careful weighing of impacts.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: **Truck Dispatching Rescheduling and Rerouting**

As part of a comprehensive regional strategy to improve air quality and mobility, the Coalition supports a variety of transportation system management measures such as ridesharing, parking management measures such as ridesharing, parking management, flex time and the appropriate limitation of truck traffic. The AQMP should be more specific in suggesting strategies which will reduce the amount of truck traffic during peak hours. We also note that cost and emission projection figures for transportation and motor vehicle measures are generally lacking, making an educated judgment of their effectiveness and feasibility difficult.

Commentor: **Munger Tolles & Olson (10/21/88)**

Response: This issue is addressed under Measure 3a. Truck Dispatching, Rescheduling and Rerouting. On page 124, under the heading "Emission Reductions", paragraph one shows "Traffic congestion caused by the presence of heavy duty trucks in the traffic stream reduces the operating efficiency of other vehicles present. Reduction of the number of heavy duty trucks operating in congested periods will reduce emissions by increasing operating speeds and efficiency reduction emissions from all pollutants, except NOx. Reductions of emissions would depend on the number of trucks operating during congested periods on various route segments and the difference in operating speed that would occur." The reason why emission projection figures are not shown is because it will depend on the statement underlined above. Since we do not have the specific number of trucks that will be operating during congested periods before implementation of this measure, we will have to wait for this data.

In response to the inquiry on cost projection figures, on page 125, under the heading "Cost Effectiveness", paragraph one shows "The cost effectiveness of this measure would depend on a number of factors....Qualification will require further study."

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Truck Dispatching, Rescheduling and Rerouting

Strategy 3.a. - Truck Dispatching, Rescheduling and Rerouting--I know there is much activity on truck related issues. In the development of this strategy was thought given to the different type of truck operations and the impacts that vary by location, time of day and season?

Commentor: James D. Ortner, Ph.D. (Auto Club) (11/3/88)

Response: This issue is addressed under Measure 3a. Truck Dispatching, Rescheduling and Rerouting. On page 123, Tier I, "Shipping and Receiving Plans and Special Truck Operations," considers the different types of truck operations by requiring shipping and receiving plans and allowing for special measures for different types of trucking activity when restricting or regulating truck deliveries.

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TRANSPORTATION, LAND USE AND ENERGY CONSERVATION MEASURES

Comment: Truck Dispatching, Rescheduling and Rerouting

While the industry can generally support curtailing truck deliveries during peak hour commute construction sites, the timing of concrete pouring is critical to the construction process of both private and public (eg. highway and mass transit) projects and needs to start at the very beginning of the work day. We also request exemption for trucks with three axles.

Commentor: Building Industry Association (11/4/88)

Response: In addressing truck delivery schedules during peak periods, public agencies and local government need to look more closely at such issues as time sensitive deliveries in the construction business, perishable goods and other goods which may require long distance travel as well as site specific activity which impacts trucks.

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TRANSPORTATION, LAND USE AND ENERGY CONTROL MEASURES

Comment: Waste Recycling

A second element needs to be added to the AQMP dealing with the disposal of pollutants and recycling.

Commentor: Jill Klajic (11/16/88)

Response: Efforts have been made to include in each measure, where appropriate, a discussion of "other impacts", including the generation of solid and liquid waste materials. There is a separate measure in the AQMP on waste recycling.

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PLAN IMPLEMENTATION

Comment: **Local Government**

It is recommended that a minimum of three years be given for local governments to prepare and adopt an Air Quality Element. Is a reimbursement available to cover the costs of preparing the element, such as under SB 90?

Commentor: **City of El Segundo (10/24/88)**

Response: SB 90 was chaptered in 1982 and provides a reimbursement system for all state-mandated local programs. Information on the potential for applicability will be available in a Handbook for local Air Elements being produced by SCAG in 1989.

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ENVIRONMENTAL IMPACT

Comment: DEIR

The DEIR does not address aircraft noise, which is an important consideration that should be addressed.

Commentor: City of El Segundo (10/24/88)

Response: The DEIR is concerned with the mitigation of impacts associated with the implementation of measures designed to reduce air quality impacts. The implementation of the aviation measures in the draft AQMP would have a net positive impact on aircraft noise since they would require the accelerated conversion of FAR Part 36 Stage II aircraft to the quieter Stage III aircraft at both LAX and Ontario airports.

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**AIR RESOURCES BOARD RESPONSE
TO COMMENTS ON THE
DRAFT 1988 AIR QUALITY MANAGEMENT PLAN**

MOBILE SOURCE

Comment: Clean Fuels

There does not currently exist the infrastructure nor proven vehicles to warrant such an aggressive move towards methanol. The economics of such a program is also a concern.

Commentors: **Chief Administrative Officer, County of Los Angeles (10/26/88)**
 Metropolitan Water District (10/27/88)
 Orange County Transportation Commission (8/17/88)
 California Manufacturers Association (10/27/88)
 California Trucking Association (10/12/88)
 McDonnell Douglas (10/26/88)
 League of Women Voters of Orange County (10/17/88)
 Sierra Club - Angeles Chapter (10/27/88)
 Coalition for Clean Air (10/27/88)
 Coalition Against the Pipeline (10/22/88)
 California Council for Environmental and Economic Balance
 (8/15/88)
 City of Costa Mesa ((9/7/88)
 City of Buena Park (9/6/88)
 City of Temple City (9/23/88)
 Chevron, USA, Inc. (9/28/88)
 Chevron El Segundo Refinery (10/22/88)
 Chevron El Segundo Refinery (10/24/88)
 Chevron El Segundo Refinery (10/25/88)
 Chevron El Segundo Refinery (10/27/88)
 Arco Los Angeles Refinery (10/26/88)
 Western Oil And Gas Association (10/27/88)
 San Diego Gas and Electric Co. (10/25/88)

Response: The ARB recognizes that the availability of methanol fueled vehicles and the supporting infrastructure are important aspects to the successful implementation of methanol. The ARB, in addition

to developing standards to permit the sale and use of alternatively fueled vehicles (including propane and natural gas), is also working with other state and local agencies (such as the Energy Commission and the SCAQMD) and industry, to facilitate the introduction of methanol fueled vehicles. This includes: sponsoring research into the health effects of methanol; sponsoring research to develop suitable neat methanol additives which will mitigate the present concerns over flame luminosity, cold starting, and accidental ingestion; working with members of the oil industry to develop methanol product and infrastructure; and working with auto manufacturers to produce and certify methanol fueled vehicles with acceptable standards of performance and emissions (including formaldehyde). By working with both the producers of the fuel as well as the vehicle manufacturers, the ARB hopes to provide stimulus to the marketplace to make alternative fuels such as methanol economically viable and environmentally safe.

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MOBILE SOURCE

Comment: **Clean Fuels**

Why aren't stringent standards for vehicles adopted and then allow the marketplace to respond as it sees fit.

Commentors: **Chevron USA, Inc. (9/28/88)**
 Chevron El Segundo Refinery (10/22/88)
 Chevron El Segundo Refinery (10/24/88)
 Mobil Oil Company (10/27/88)
 Western Oil and Gas Association (10/27/88)

Response: The ARB has adopted, or is working on more stringent standards for all classes of motor vehicles. While the ARB has historically relied on the marketplace to respond to more stringent standards (e.g., the use of catalytic converter to meet the 1975 hydrocarbon emission standards), the situation has changed as the standards have become more and more stringent. In the case of diesel vehicles, alternative fuels are seen as competitive with the strategy of particulate traps, particularly for the short term. For light-duty vehicles, the emission standards are approaching the practical limits of what can be achieved, especially in-use emissions. Thus, given the large number of light-duty vehicles an alternate strategy is required, namely alternative fuels. In each case, the implementation of such strategies will require some encouragement towards industry, and the ARB believes it can provide this by assisting where possible.

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MOBILE SOURCE

Comment: Clean Fuels

Why is there the focus on methanol when there is still some question as to the potential air quality benefits of widespread methanol use.

Commentors: California Manufacturers Association Southern California Alliance (10/27/88)
California Trucking Association (10/12/88)
Unocal Corp. (10/27/88)

Response: The use of methanol should lead to less reactive hydrocarbon emissions, as well as reduced nitrous oxide emissions. These are the two basic components of ozone for which this area experiences the most serious exceedances. Methanol as a replacement fuel for heavy-duty diesel vehicle operation also significantly reduces particulate matter emissions. Additionally, methanol is expected to contain fewer toxic substances (such as benzene) than either gasoline or diesel fuel.

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MOBILE SOURCE

Comment: **Clean Fuels**

The ARB motor vehicle control program strategies should consist only of more stringent standards and the elimination of excess emissions, and should not include alternative fuels.

Commentor: **Chevron El Segundo Refinery (10/26/88)**

Response: ARB emission estimates show a leveling off of emission reductions when projected to the year 2000-2010 timeframe, using only the strategies of more stringent standards and the elimination of excess emissions. This necessitates the use of alternative, cleaner fuels as an emission reduction strategy in order to continue to achieve emission reductions beyond the year 2000.

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Comment: **Clean Fuels**

The volatility of methanol and natural gas are much higher than those of current conventional gasoline/diesel fuel used to operate trucks and other vehicles.

Commentor: **Highway Carriers Association (7/7/88)**

Response: The volatility of methanol is in fact less than conventional gasoline (and volatility is not a concern with diesel fuel which has low volatility). The volatility of neat (i.e., 100 percent methanol) as measured by Reid Vapor Pressure (RVP) is on the order of 4.5 -5.0 pounds per square inch (psi). The volatility of M-85 (85 percent methanol/15 percent premium unleaded gasoline) is less than that of conventional gasoline (about 7.7 psi versus a summertime RVP of 9.0 for conventional gasoline). Since liquid natural gas is stored under pressure the comparison of vapor pressure is not really valid.

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MOBILE SOURCE

Comment: Inspection and Maintenance (I/M)

The biennial Inspection and Maintenance (I/M) program should be changed to an annual inspection and the use of loaded mode I/M emissions testing should be employed.

Commentors: Auto Check (10/27/88)
Inland Empire Economic Council (10/12/88)
League of Women Voters Southern California Regional Task Force
(10/24/88)
Jeb Stuart (10/24/88)
American Lung Association of California (8/15/88)

Response: As was noted by one of the commentors, changing the I/M (Smog Check) program from a biennial program to an annual one requires legislative authority. Analysis of the costs and benefits to date have not supported the change to an annual inspection program. An annualized program offers little in the way of increased benefits, particularly for new vehicles and on into the future. Senate Bill 1997, recently signed into law, provides the local districts with the opportunity to request testing for oxides of nitrogen (the pollutant which requires loaded mode testing for accurate measurement). Upon such a request, the ARB will act to assist in the development, production, and installation of testing equipment. The recent development of on-board computer diagnostic systems leads the ARB to believe that future I/M inspections may be performed more effectively by interrogating the on-board computer for any stored trouble codes, rather than performing the present tailpipe emissions testing and visual and functional checks.

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MOBILE SOURCE

Comment: **Inspection and Maintenance (I/M)**

There should be more stringent standards, and/or there should be a more rigorous I/M program for the South Coast I/M program.

Commentor: **The American Lung Association of California (8/15/88)**
Western Gas and Oil Association (10/27/88)

Response: The Smog Check program is intended to be a statewide program for nonattainment areas, and thus will have only one set of standards. Senate Bill 1997 provides for periodic revisions of the I/M emission standards as data and experience justifies.

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Comment: **Inspection and Maintenance (I/M)**

Data collected from the testing program should be used to evaluate the success of the current program and to plan for future program changes.

Commentor: **Auto Check (10/27/88)**

Response: The I/M (Smog Check) program has been evaluated as directed by the original legislation, Senate Bill 33. The I/M Review Committee established by this legislation published its final report in April 1987. The recommendations contained in this report formed the basis for the recently signed legislation (SB 1997) which reauthorizes the I/M program and directs that significant improvements be made to the program (including higher cost limits, stronger warranty requirements on emission control equipment, improved Test Analyzer System (TAS) machines, and improved mechanic training).

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MOBILE SOURCE

Comment: Inspection and Maintenance (I/M)

- 1) The exemption for older cars, trucks, and diesel vehicles should be eliminated.
- 2) Ensure that all cars are registered and Smog Checked.
- 3) New diesel vehicles should be banned from the Basin.
- 4) Heaters should be required to warm up catalytic converters to their operating temperature more quickly.
- 5) Establish fuel economy standards for the Basin.

Commentor: Marc Drehsen (10/7/88)

- Response:**
- 1) The new I/M legislation specifies that all motor vehicles (except as noted in the bill) manufactured after the 1965 model year (i.e., 1966 and later) be included in the I/M program. Prior to 1966 there were no emission controls required on motor vehicles and thus there would be little to inspect for. Furthermore, these vehicles are not a large fraction of the fleet, nor are they driven many miles in a given year. Finally, these older vehicles can be expected to represent a smaller and smaller fraction of the motor vehicle fleet in the coming years. Heavy-duty trucks are to be included in the revised program. Heavy-duty gasoline trucks will be added to the Smog Check program which already includes medium-duty trucks, and both gasoline and diesel heavy-duty trucks will be in the new smoke enforcement program currently under evaluation.
 - 2) The present regulations provide that all vehicles (except as noted above) in nonattainment areas be subject to the Smog Check as a condition of registration and re-registration.
 - 3) Light-duty diesel vehicle sales have decreased to almost nil in recent years, and the use of alternatively fueled vehicles for the heavy-duty market should reduce diesel emissions.
 - 4) Both the ARB and the Environmental Protection Agency (EPA) are currently investigating the feasibility and viability of cold start heating devices for catalytic converter. Additionally, the proposed hydrocarbon and carbon monoxide standards of 0.25 g/mi and 3.4 g/mi, respectively, should do much to encourage the auto manufacturers to improve their vehicle's

cold start capabilities, since cold start emissions are where the manufacturers are expected to achieve the emission reductions necessary to comply with the proposed lower standards.

- 5) The federal government is the only agency which can currently mandate fuel economy standards.

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MOBILE SOURCE

Comment: More Stringent Standards

The Air Quality Management Plan was criticized as not having as stringent emission standards on motor vehicles (including passenger cars, trucks and buses), as on stationary sources.

Commentors: Inland Empire Economic Council Chambers of Commerce (10/27/88)

Edward H. Waldheim (10/24/88)

Western Gas and Oil Association (10/27/88)

Cheryl Turner (10/22/88)

Building Industry Association (10/27/88)

Valley Industry and Commerce Association (10/31/88)

Shell Oil Company - Shell Chemical Company (10/27/88)

Southern California Gas Company (8/16/88)

Response: The state of California, almost without exception, has the most stringent emission standards in the United States. The ARB is continually revising these new vehicle standards downward, as quickly as available (or soon to be available) technology permits. This includes standards for all categories of vehicles including passenger cars, light-duty trucks, medium-duty trucks, heavy-duty trucks (both gasoline and diesel), and buses. Assembly Bill 2595 (the California Clean Air Act) recently signed by into law grants authority to the ARB to regulate previously unregulated mobile sources and explicitly specifies emission reduction targets for mobile sources. Additionally, to ensure good in-use performance, the state implemented the Inspection and Maintenance Program (Smog Check) in 1983. This program will soon be improved by changes authorized by the recently signed Senate Bill 1997. In summary, the most stringent standards and enforcement measures are being pursued in the area of mobile sources, and much more activity is planned for the future.

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MOBILE SOURCE

Comment: **More Stringent Standards**

Draft formaldehyde standards (for alternative fuels) for vehicles.

Commentor: **Sierra Club - Angeles Chapter (10/27/88)**

Response: The ARB is currently in the process of drafting emission standards for methanol fueled motor vehicles. These standards are to include emission standards for formaldehyde.

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Comment: **More Stringent Standards**

Emissions of diesel vehicles should be made comparable to automobiles.

Commentor: **Sierra Club - Angeles Chapter (10/27/88)**

Response: Diesel vehicles typically emit low levels of hydrocarbons and carbon monoxide, and thus the emission of interest are oxides of nitrogen and particulate matter. Within the fundamental constraints imposed by diesel technology, diesel emissions are being reduced to the lowest levels thought to be achievable and much effort is being pursued to facilitate the use of alternative fuels.

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MOBILE SOURCE

Comment: More Stringent Standards

There needs to be national new vehicle emission standards mandated by the Federal government through the Environmental Protection Agency.

Commentor: Fontana Area Chamber of Commerce

Response: The state of California currently has a waiver under federal law which allows it to adopt (generally) more stringent standards than the federal government has adopted. This waiver was issued in recognition of the unique geography and demography of the state of California which necessitate a more stringent automobile emissions program as compared to the rest of the country. Consideration is being given by several different states, because of their growing air pollution problems, to adopting California's more stringent new vehicle emission standards.

* * * * *

Comment: More Stringent Standards

Currently demonstrated technology (including methanol and particulate traps) on heavy-duty buses cannot meet the proposed lower standards for NOx and particulate matter.

Commentor: Los Angeles County Transportation Commission (8/12/88)

Response: The Air Resources Board has been sponsoring research and demonstration projects on both methanol fueled vehicles and on particulate trap technology. While the proposed standards will be technology forcing, the ARB will do all that it can in terms of sponsoring research and demonstration projects to see that the standards can indeed be met. The three GM methanol buses in the Riverside Regional Transit Authority - ARB joint demonstration project are an example of this commitment.

* * * * *

MOBILE SOURCE

Comment: More Stringent Standards

The effect of lower gasoline vapor pressure on reactive organic gas (ROG) emissions should be determined before a proposal for a lower vapor pressure standard is included in the Air Quality Management Plan (AQMP)

Commentor: Western Oil and Gas Association (10/27/88)

Response: A test project is underway by the ARB to determine the benefits of lower vapor pressure limits on gasoline. The results of this study will be evaluated before a formal proposal to lower vapor pressure is developed. Assembly Bill 2595 now authorizes the ARB to reduce vapor pressure.

* * * * *

Comment: Emissions Inventory

There is some uncertainty as to the accuracy of the emissions inventory since two recently completed studies on automobiles (one by the ARB and one by the EPA) indicate that vehicle evaporative reactive organic gases (ROG) emissions may be underestimated by 200% to 1000%.

Commentor: Southern California Gas Company (10/24/88)

Response: The ARB, having conducted the study, is aware of the problem and will be addressing this and other issues in a Board hearing scheduled for 1989. Additional research studies are being funded to pinpoint the causes of running loss emissions and determine technological solutions.

* * * * *

MOBILE SOURCE

Comment: In-Use Compliance

Vehicular sources of emissions must be more aggressively pursued, particularly with respect to vehicles which in-use, cannot adhere to the new vehicle standards to which they were certified and warranted.

Commentor: Mobile Oil Company (10/27/88)

Response: The ARB is well aware of the problems in-use vehicles have in complying with the emission standards. Since 1987 the ARB has undertaken a program in which thirty engine families per year are compliance tested for violations and where applicable, emission reduction remedies are sought. In addition, the ARB is proposing revisions to its on-board diagnostic regulations which should result in significant improvements to in-use vehicle performance. The ARB also recently adopted revised recall regulations designed to improve defect reporting and vehicle recall, which should improve in-use vehicle programs. Finally, the ARB is working with the Department of Motor Vehicles to implement a pilot program which will require that vehicles subject to an emissions recall have proof of correction before being issued a registration renewal.

* * * * *

Comment:

Since mobile sources are the dominant contributor to all categories of emissions in the Basin except for particulate matter, and to be consistent with Assembly Bill 2595, control measure should be prioritized.

Commentor: Western Oil and Gas Association (10/27/88)

Response: AB 2595, was signed into law subsequent to the preparation of the Air Quality Management Plan (AQMP) and its Appendices. The 1989 Update of the Post-1987 Motor Vehicle Plan will reflect the directives of AB 2595.

* * * * *

APPENDIX II

LIST OF WRITTEN COMMENTS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

LIST OF WRITTEN COMMENTS SUBMITTED FOR AQMP/DEIR PUBLIC HEARING RECORD (AS OF NOVEMBER 9, 1988)

[* Indicates also testified at Public Hearing]

CITIES	LOS ANGELES COUNTY	DATE
City of Agoura Hills,	Planning & Comm. Devel.	8-05-88
City of Claremont,	Dept. of Comm. Devel.	8-09-88
City of Claremont,	City Manager	10-27-88
City of Commerce,	Planning	9-19-88
Culver City,	Municipal Services Director	8-22-88
Culver City*,	City Planner	10-27-88
City of Cypress,	City Manager	10-20-88
City of Gardena,	Planner	10-25-88
City of La Mirada,	City Manager	10-20-88
City of La Verne,	City Hall	8-19-88
City of Long Beach*,	City Manager	8-12-88
City of Long Beach,	The Port of Long Beach	11-02-88
City of Los Alamitos,	City Manager	9-16-88
City of Los Angeles,	City Plng. Comm.	5-04-87
City of Los Angeles,	City Planning Comm.	8-29-88
City of Manhattan Beach,	Mayor	10-24-88
City of Paramount,	City Manager	11-03-88
City of Pomona,	Community Development Dept.	10-27-88
City of Pomona,	Public Works Dept.	10-27-88
City of Rolling Hills,	Mayor	10-6-88
Temple City,	Mayor	9-23-88
City of Vernon,	Mayor	8-30-88
City of West Covina,	Mayor	8-11-88
City of West Hollywood,	(informal), Mayor	-
Los Angeles Memorial Coliseum Commission		8-19-88

CITIES	ORANGE COUNTY	DATE
City of Anaheim,	City Manager	8-22-88
City of Anaheim*,	Mayor	10-20-88
City of Brea,	City Manager	11-08-88
City of Buena Park,	City Manager	9-06-88
City of Buena Park		10-26-88
City of Costa Mesa,	City Manager	8-10-88
City of Costa Mesa,	Mayors Office	9-7-88
City of Fullerton,	Development Services Dept.	8-09-88
City of Fullerton,	Development Services Dept.	8-15-88
City of Fullerton,	Mayor	9-28-88
City of Fullerton*,	Development Services Dept.	10-12-88
City of Garden Grove,	City Manager	10-13-88
City of Irvine*,	City Manager	8-15-88
City of Irvine,	City Manager	10-18-88
City of La Habra,	City Manager	8-09-88
City of Newport Beach*,	City Manager	10-18-88
City of Placentia,	City Administrator	8-12-88
City of Placentia,	City Administrator	10-19-88
City of San Juan Capistrano,	City Manager	10-17-88

City of Santa Ana, City Manager	8-12-88
City of Santa Ana, City Manager	10-27-88
City of Seal Beach, City Manager	9-15-88
City of Stanton, City Manager	10-17-88
City of Tustin, Mayor	10-27-88
City of Tustin, Planning Commissioner	11-1-88
City of Westminster, City Manager	10-13-88

CITIES	RIVERSIDE COUNTY	DATE
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City of Corona, City Manager	8-8-88
City of Moreno Valley, Planning Director	10-27-88

CITIES	SAN BERNARDINO COUNTY	DATE
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City of Chino, Community Devel. Dept.	7-29-88
City of Chino, Councilmen Sawhill	10-26-88
City of Fontana, Planner	8-12-88
City of Fontana, Planner	8-31-88
City of Ontario, City Planner	8-11-88
City of Ontario, City Planner	10-17-88
City of San Bernardino, Mayor	10-31-88
City of South Gate (informal)	-

HOSPITALS	DATE
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Antelope Valley Hosp. Medical Center	9-14-88
Brotman Medical Center	9-28-88
Corona Community Hospital	9-24-88
Desert Hosp.	9-19-88
Downey Community Hospital, Rehabilitation Center	9-20-88
Downey Community Hospital	9-23-88
Eisenhowen Memorial Hosiptal	9-22-88
Hi Desert Medical Cneter	10-3-88
La Habra Community Hospital	9-13-88
Verdugo Hills Hopsiptal	9-12-88
Verdugo Hills Hopsiptal	9-16-88
California Medical Center of Los Angeles	9-15-88
Hospital Council of Southern California	8-30-88

CHAMBERS OF COMMERCE	DATE
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Los Angeles Area Chamber of Commerce*	8-15-88
Van Nuys Area Chamber of Commerce	10-14-88

COUNTY	DATE
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County of Los Angeles, Board of Supervisors	10-21-88
County of Los Angeles, Chief Administrative Office	9-12-88
County of Los Angeles, Chief Administrative Officer	10-26-88
County of Los Angeles, Department of Public Works	8-11-88
County of Los Angeles, Sanitation Districts	10-27-88
County of Los Angeles Transportation Commission	8-12-88
County of Los Angeles, Transportation Commission	8-15-88
County of Los Angeles, Transportation Commission	10-27-88

County of Los Angeles, Transportation Commission	10-31-88
County of Orange, Supervisor Harriet Wieder	9-7-88
County of Orange, John Wayne Airport	8-15-88
County of Orange, Planning*	10-24-88
County of Orange, Sanitation Districts*	10-27-88
County of Orange, Transportation Commission	8-17-88
County of Riverside, Transportation Commission*	8-17-88
County of San Bernardino, Air Pollution Control District	7-12-88

FEDERAL GOVERNMENT

DATE

U.S. Department of the Army	10-03-88
U.S. Department of Transportation, United States Coast Guard*	10-26-88

REGIONAL GOVERNMENT

DATE

Coachella Valley Water District	10-26-88
Las Virgenes Municipal Water District	8-26-88
Los Angeles Memorial Coliseum Commission	8-16-88
Metropolitan Water District of So. Cal.	10-27-88
Southern California Association of Governments	8-25-88
Southern California Rapid Transit District	8-18-88
Southern California Rapid Transit District	11-03-88

STATE GOVERNMENT

DATE

Assemblyman Ross Johnson	9-12-88
California Energy Commission	10-27-88
California Public Utilities Commission	11-08-88
Department of Housing and Comm. Devel.	9-02-88
Department of Transportation	10-04-88
Department of Transportation, Dist. 12	10-24-88
Governor's Office of Planning and Research	10-27-88

INDIVIDUALS

DATE

Paul C. Able	-
Bryan Allen	10-24-88
Mr. & Mrs. Harvey Barrett	10-27-88
Tony Debellis	-
Marc Drehsen	10-7-88
Judith Freed	8-8-88
Alison C. Fuller	8-1-88
Margaret V. Hadstrom	10-25-88
Scott Herbertson	-
A. Jabbour	10-18-88
Mr. & Mrs. Newell Johnson	10-26-88
Betty-Jean Lamb	10-23-88
Jack Lynn	-
Barbara Mauz	10-27-88
Ruth Neilson	9-2-88
R.A. Nichols Engineering	10-7-88
Ed Salisbury	8-7-88

Daniel Silver. M.D.	8-10-88
Norri Sirri	-
Wanda Sterner	-
Residents of Rancho Mirage & Coachella Valley	10-24-88
Janis Tuzzolino	10-27-88
Jordon Torgerson	10-26-88

ORGANIZATIONS/ASSOCIATIONS

DATE

Air Transport Association of America	8-12-88
Air Transportation Association of America	10-15-88
American Gas Association	10-25-88
American Gas Association, L.J. Swift	-
American Lung Association of California	8-15-88
Building Industry Association of So. Cal.*	8-12-88
Building Industry Association of So. Cal.	9-9-88
Building Industry Association of So. Cal.	10-27-88
California Council for Environmental and Economic Balance	8-15-88
California Council for Environmental and Economic Balance	10-27-88
California Fabricare Institute	8-24-88
California Manufacturers Association*	8-31-88
California Manufacturers Association, So. Cal. Air Quality Alliance	8-15-88
California Manufacturers Association, So. Cal. Air Quality Alliance	11-02-88
California Solar Energy Industries Assoc.	10-10-88
Chemical Specialties Manufacturers Assoc.	10-27-88
Coalition Against the Pipeline*	7-11-88
Coalition for Clean Air*	10-27-88
Federation of Labor, AFL-CIO	10-28-88
Group Against Smog Pollution	10-27-88
Highway Carriers Association	7-7-88
Homeowners of Encino	8-8-88
The Inland Empire Economic Council*	7-5-88
The Inland Empire Economic Council	10-4-88
The Industrial Environmental Coalition of Orange County	10-27-88
O'Melveny & Myers, On Behalf Of, The Special Event Centers*	10-27-88
Olympic Chiropractic Office	10-24-88
Planning Directors Association of Orange County	10-24-88
Sierra Club-Angeles Chapter*	8-08-88
Sierra Club-Angeles Chapter	10-15-88
Sierra Club-Angeles Chapter	10-27-88
Sierra Club-Angeles Chapter	11-02-88
Source Reduction Research Institute	10-4-88
Special Events Centers/Organizations	10-24-88
University of California, Riverside	10-25-88
Valley Industry and Commerce Assoc.	10-31-88
Western Oil & Gas Association*	10-27-88
Zero Population Growth	7-12-88

CORPORATIONS

DATE

Anaheim Stadium	10-27-88
ARCO, LA Refinery	10-26-88
Auto Chek	10-27-88
Blue Diamond Materials	10-11-88
Brookfield Productions, Inc., Norman Brooks	11-9-88
Brookfield Productions, Inc., Fern Field	10-25-88
Brookfield Productions, Inc., Jeanne Troy	10-25-88

Chevron USA Inc.	8-15-88
Chevron USA Inc.*	8-19-88
Chevron USA Inc.	10-21-88
Chevron USA Inc.	10-26-88
Chevron, at Carson	9-28-88
Commuter Transportation Services, Inc.	11-10-88
The Irvine Company	8-19-88
Kirkhill Rubber Company	-
Knott's Berry Farm	10-27-88
Luster Cote	8-8-88
MESA	7-6-88
McDonnell Douglas	10-26-88
Mobile Oil Co.	10-27-88
Olympic Chiropractice Office	10-24-88
San Diego Gas & Electric Company	-
Shell Oil Company*	10-27-88
Six Flags Magic Mountain	10-26-88
Southern California Gas Company*	8-16-88
Southern California Gas Company	10-88
Southern California Gas Company	10-01-88
Southern California Gas Company	10-24-88
Southern California Gas Company	10-27-88
Southern California Edison Company	8-15-88
Southern California Edison Company	10-27-88
Southern California Rapid Transit District	11-03-88
Texaco Refining and Marketing Inc.	10-27-88
Unocal Corporation*	10-27-88
The Walt Disney Company	10-27-88

APPENDIX III

LIST OF PEOPLE WHO TESTIFIED AT EACH AQMP PUBLIC HEARING

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
LIST OF PEOPLE WHO TESTIFIED AT EACH AQMP PUBLIC HEARING

SAN BERNARDINO, WEDNESDAY, OCTOBER 12, 1988

Name	Title/Association
1. Barbara Riordan	Sup. San Bernardino County
2. Don Blose	American Lung Assoc.
3. Joel Rosen	City of Fullerton
4. Karen Rasmussen	CA Trucking Assoc.
5. Kevin Cooper	Hadley Auto Transport/ CA Trucking Assoc.
6. Greg Owen	CA Trucking Assoc./ Tri-Modal Dist. Ser.
7. Jane Darby	League of Women Voters
8. Michael Wang	West. Oil & Gas Assoc. (WOGA)
9. WJ Fassler	Chevron USA, Inc.
10. Terry Moore	Inland Empire Economic Council (IEEC)
11. Harvey Eder	Ex. Dir. Pub. Solar Power Coalition
12. Lloyd Zola	Ontario Chamber of Commerce

JOHN MUIR JR. HIGH SCHOOL, SATURDAY, OCTOBER 22, 1988

Name	Title/Association
1. Rae Wishom	Minority Coalition for Responsible Growth
2. Robert Paternaster	City of Long Beach
3. Otter Meril Johnson	Raymond and Neighborhood Assoc.
4. Ryan Snyder	Individual
5. Richard Adams	Coalition Against the Pipeline
6. Dan Garcia	Minority Coalition for Responsible Growth
7. Ingrid Markul	League of Women Voters Regional Task Force, Air Quality Committee
8. Edward Spaulding	Chevron USA
9. Gilbert H. Bishop	Individual
10. Rosenell R. Dynes	Gramercy Place Block Club
11. Gabor Urban	Individual
12. Sebie S. Brown	Individual
13. Sebie S. Brown for Marion Bone	Individual
14. Jackie Freedman	Culver City
15. Cheryl Turner	Individual
16. Joyce Leslie	Individual
17. Harvey Eder	Public Solar Power Coalition
18. Robert Farrel	Councilman/City of Los Angeles

GLENDAL, MONDAY, OCTOBER 24, 1988

<u>Name</u>	<u>Title/Association</u>
1. Pamela Popovich	American Lung Association of CA
2. Tom Flavin	Econ. Devel. Corp/L.A. County
3. Marc Christiansen	So. Cal. Gas Co.
4. Stanley Hart	Sierra Club
5. Robert Peterson	Individual
6. Owen Olpin	O'Melveny & Myers for Special Events
7. Allison Fuller	League of Women Voters
8. Jeb Stuart	Keep Riverside Ahead
9. Edward H. Waldheim	Individual
10. David J. O'Reilly	Chevron
11. Douglas Henderson	WOGA
12. Terry Moore	Inland Empire Economic Council (IEEC)
13. Jeffrey N. Jones	Sierra Club
14. Herbert Spencer	Individual
15. Ray Remy	L.A. Area Chamber of Commerce
16. Phyllis Kenney	League of Women Voters
17. Sandra Kersley	Individual
18. Richard Adams	Coalition Against the Pipeline
19. Jordan Tergerson	Member Cit. for Better Env.
20. Steve Glaser	Sierra Club, Angeles Chapter Air Quality Committee
21. Kim Abel	Individual

GLENDAL, MONDAY, OCTOBER 24, 1988
(continued)

- | | | |
|-----|--------------------|-------------|
| 22. | Bonnie Holmes | Sierra Club |
| 23. | Richard Kahlenberg | Individual |
| 24. | Ken Applegate | Individual |
| 25. | David Harbaugh | Individual |
| 26 | Bryan Allen | Individual |

PALM DESERT, TUESDAY, OCTOBER 25, 1988

<u>Name</u>	<u>Title/Association</u>
1. Jean Benson	Mayor Pro Tem City of Palm Desert
2. William Arenstein	Member, Indian Wells City Council, appearing on behalf of Coachella Valley Association of Governments
3. Buford Crites	Member, Palm Desert City Council, representing CVAG
4. Daniel L. Ehrler	Palm Desert Chamber of Commerce
5. Bruce Clark	Coachella Valley Water District
6. John Lavender	Palm Desert Disposal Service, Inc.
7. Gail Biondi	League of Women Voters
8. George L. Stanton	PACFREEZ
9. Dr. Harry Levine	Individual
10. Marion Henderson	President, Desert Beautiful Inc.
11. Hank Clark	Individual
12. Don Liebling Frank	Individual
13. William Massengil	American Lung Association
14. Alan Layton	Sun Fuel
15. Rheo Lawman	Individual
16. Marcie Blatt	Desert Beautiful
17. Don Frank	Individual

RIVERSIDE, WEDNESDAY, OCTOBER 26, 1988

<u>Name</u>	<u>Title/Association</u>
1. Don Baskett	City Councilman, Hemet Riverside County Transportation Comm.
2. James Poss	Sierra Club
3. Stephen Albright	Keep Riverside Ahead
4. George Lauer	Atlantic Richfield Co.
5. Fred Harris	Individual
6. Greg Ballmer	Individual
7. Hearing Officer Schmued for Douglas Weiford	Riverside City Manager
8. Sandra MacGregor	League of Women Voters
9. Ernestine Barrett	League of Women Voters
10. Virginia Field	Clean Air Now
11. Virginia Field	Clean Air Now
12. Truman Jock	SCAG

SANTA ANA, THURSDAY, OCTOBER 27, 1988

<u>Name</u>	<u>Title/Association</u>
1. Donn Hall	Mayor, City of Costa Mesa
2. Pat McGuigan	Councilwoman, City of Santa Ana League of California Cities
3. Lida Lenney	Councilwoman, City of Laguna Beach
4. Craig Buell	City of Newport Beach, Planning Dept.
5. Jan Chatten Brown	L.A. District Attorney's Office
6. Kim Dexter	City of Garden Grove
7. Dana Ohanesian	City of Garden Grove
8. Jan Chatten Brown	Coalition for Clean Air
9. Joel W. Rosen	City of Fullerton
10. Kristine Thalman	City of Anaheim
11. Steve Forsberg/ Jack Broadbent	California Manufacuturers Association
12. Marilyn Dewitt	League of Women Voters
13. William Gayk, Ph.D.	County of Orange
14. Donald Hanley	Unocal
15. Beth Leeds	Save Our Shores - Orange County
16. Eve Somjen	City of Irvine
17. LCDR F.L. McClain	U.S. Coast Guard
18. Stephen Rhodes	California Energy Commission
19. Scott Stevens	County Sanitation Districts of Orange County
20. Edward Woolsey	Industrial Environmental Coalition of Orange County
21. Marielle Leeds	Laguna Green Belt
22. Lou Bintz	Western Liquid Gas Assoc.
23. Bill Lawrence	Building Industry Assoc. of Calif.

SANTA ANA, THURSDAY, OCTOBER 27, 1988
(continued)

24.	Mike Hertel	Southern California Edison
25.	Ronald J. Swofford	Shell Oil Co.
26.	Ed Spaulding	Chevron U.S.A.
27.	Robert Stockdale	Western Oil and Gas
28.	Shirrey Lee Meddick	Individual
29.	Allan Krosner	Individual
30.	Alan B. Rice	Individual
31.	Samuel Hanna	Individual
32.	Lori Aunan	Individual
33.	Malcolm K. Sauls	Summit Home Owners Assoc.
34.	Robert Confair	Students Against the Vanishing Environment (S.A.V.E.)
35.	Flora Lu	(S.A.V.E.)
36.	Ward Elliott	GASP, Coalition for Clean Air
37.	Timothy F. Thompson	Individual
38.	Carolyn Wood	Individual
39.	Wm. Mondschein	Individual
40.	Sean Olson	S.A.V.E.
41.	Stella Wells	Individual
42.	Terry Fitzgerald	City of Duarte
43.	Gerhard Peters	Individual
44.	Sandra Kersley	Individual
45.	Scott Anderson	Individual
46.	Kristy Wise	Individual
47.	Harvey Eder	Solar Power

**Written Statements Submitted for the Record
at the Hearing**

1. Terry A. Moore President, IEEC
2. Gary C. Beck Precision Standard Time Inc.
3. Maryanne Jones Manager, Transportation Div.

APPENDIX IV

LIST OF ACRONYMS USED IN THIS DOCUMENT

LIST OF ACRONYMS AND ABBREVIATIONS

APCD	Air Pollution Control District
APCO	Air Pollution Control Office
AQMP	Air Quality Management Plan
AIP	Federal Airport Improvement Program
ARB	California Air Resources Board
ATSAC	Automated Traffic Surveillance and Control
AVR	Average Vehicle Ridership
Basin	South Coast Air Basin
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
BTU	Bio-Thermal Units
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy
CalTrans	California Department of Transportation
CAT	Catalytic Converter
CEC	California Energy Commission
CHP	California Highway Patrol
CNEL	Community Noise Equivalent Level
CPI	Consumer Price Index
CPUC	California Public Utilities Commission
CO	Carbon Monoxide
CRF	Capital Recovery Factor
DAQMP	Draft Air Quality Management Plan

LIST OF ACRONYMS AND ABBREVIATIONS (pg. 2 of 5)

DEIR	Draft Environmental Impact Report
DOF	Department of Finance
DSL	Diesel
DTIM	Direct Travel Impact Model
EIR	Environmental Impact Report (State)
EIS	Environmental Impact Statement (Federal)
EKMA	Empirical Kinetic Modeling Approach
EPA	U.S. Environmental Protection Agency
ERC	Emission Reduction Credits
ESP	Electro Static Precipitator
EV	Electric Vehicle
FAA	Federal Aviation Administration
FAR	
FCC	Fluid Catalytic Cracking
FEIR	Final Environmental Impact Report
gm/mi	Grams per mile
GMP	Growth Management Plan
HC	Hydrocarbons
HCD	State Dept. of Housing & Community Dvlpt.
HDT	Heavy Duty Trucks
HDV	Heavy Duty Vehicle
HOV	High Occupancy Vehicle
H ₂ S	Hydrogen Sulfide
HUD	U.S. Department of Housing and Urban Development

LIST OF ACRONYMS AND ABBREVIATIONS (pg 3 of 5)

IC	Internal Combustion
I/M	Implementation and Maintenance
J/H	Jobs/Housing
JPA	Joint Powers of Authority
Kg/Day	Kilograms Per Day
Km	Kilometer
KVB	
LACTC	Los Angeles County Transportation Commission
LDA	Light Duty Automobile
LDT	Light Duty Trucks
LDV	Light Duty Vehicle
LMDT	Light And Medium Duty Trucks
LPG	Liquified Petroleum Gas
LRT	Light Rail Transit
LTF	Local Transportation Funds
MCY	Motorcycle
MDT	Medium Duty Truck
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MTBE	
NAAQS	National Ambient Air Quality Standards
NCAT	No Catalytic Converter
NO	Nitric Oxide
NOx	Oxides Of Nitrogen

LIST OF ACRONYMS AND ABBREVIATIONS (pg. 4 of 5)

NSR	New Source Review
NSSA	New Source Sitting Allowance
OCS	Outer Continental Shelf Exploration
OCTC	Orange County Transportation Commission
OSHA	Occupational Safety and Health Admin.
OWP	Overall Work Plan
PM	Particulate Matter
PM ₁₀	Particulate Matter (< 10 microns)
POTW	Privately Owned Treatment Works
ppm	Parts per million
RACT	Reasonably Available Control Technology
RCRA	(Fed.) Resource Conservation & Recovery Act
RDF	Refuse Derived Fuel
RMP	Regional Mobility Plan
ROG	Reactive Organic Gases
SCAG	Southern California Association Of Governments
SCAQMD	South Coast Air Quality Management District
SEDAB	South East Desert Air Basin
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SO ₃	Sulfur Trioxide
SO _x	Oxides Of Sulfur

LIST OF ACRONYMS AND ABBREVIATIONS (pg. 5 of 5)

STIP	State Transportation Implementation Plan
TCM	Transportation Control Measures
TDM	Transportation Demand Measures
TOG	Total Organic Gases
TPD	Tons per day
UAM	Urban Airshed Model
UV	Ultra-violet
VHT	Vehicle Hours Travelled
VMT	Vehicle Miles Travelled
VOC	Volatile Organic Compounds
VT	Vehicle Trips
WOGA	Western Oil and Gas Association

U.C. BERKELEY LIBRARIES



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